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W.K.GerbrickHeadsWisconsinPaperGroup

Wisconsin Paper Group Elects W. K. Gerbrick, of Central Paper Co., President and Other Officers—New Power Plant Under Construction —Reforestation For Future Pulpwood Supply—Other Industrial News.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., January 23, 1939—W. K. Gerbrick of the Central Paper Company, Menasha, Wis., was elected president of the Wisconsin Paper Group at its annual meeting January 14 at Valley Inn, Neenah, Wis. He succeeds R. M. Sensenbrenner of the George A. Whiting Paper Company, Menasha. The Group is a pool car shipping association operated on a non-profit basis for 27 member mills and converters in Wisconsin.

W. K. Austin, Kimberly-Clark Corporation, Neenah, was reelected vice president, and L. O. Schubart, Neenah Paper Company, Neenah, secretary-treasurer. Irwin W. Pearson, executive secretary, was retained in that capacity.

Members of the executive committee were elected as follows: N. H. Bergstrom, Bergstrom Paper Company, Neenah; E. C. Hilfert, Riverside Paper Corporation, Appleton; C. W. Hoeper, Badger Paper Mills, Inc., Peshtigo; R. J. Sund, Menasha Products Division of Marathon Paper Mills Company, Menasha; R. F. Bellack, Fox River Paper Corporation, Appleton; W. A. Munro, Flambeau Paper Company, Park Falls; H. D. Wake, Consolidated Water Power and Paper Company, Wisconsin Rapids. R. M. Sensenbrenner, retiring president, is automatically a member of the committee for one year.

Reports were submitted by Secretary-Treasurer Schubart, Henry C. Krueger, chairman of the traffic committee, E. C. Colvin, chairman of the advertising committee, and Mr. Pearson.

Upper Fox River Dam May be Rebuilt

Rebuilding of the upper dam on the Fox River at Appleton, Wis., which supplies water power to paper mills and allied industries and the Wisconsin Michigan Power Company plant, is contemplated by the War Department. An appropriation of $209,000 is asked of the present Congress by the board of United States engineers for this purpose. The report points out that the dam, built in the early seventies, is in poor condition and has an insufficient flood discharge capacity.

New Power Plant Under Construction

Construction of a new hydro-electric plant on the site of the former Patten Paper Company, Ltd., mill has been started by the City of Kaukauna, Wis. It will utilize water power from the former Outagamie Paper Company dam on the Fox River.

It is estimated the cost will be $475,000, of which $232,701 has been awarded the city as a WPA grant. A 2,400-kilowatt generator is to be installed.

Paper Mills Assessed Water Tolls

Water power tolls of $137,303.25 have been assessed against paper mills and power plants along the Wisconsin River by the Wisconsin Valley Improvement Company, according to a schedule covering the last six months of 1938 filed with the Wisconsin Public Service Commission. A hearing on the schedule was set for January 25 at Madison, Wis., to hear any objections. Tolls are as follows: Wisconsin Public Service Corporation, $23,346; Consolidated Water Power and Paper Company, $35,415; Nekoosa-Edwards Paper Company, $21,491; Wisconsin Power and Light Company, $27,339; Rhinelander Paper Company, $3,367; Tomahawk Pulp Company, $1,073; Tomahawk Kraft Paper Company, 4,856; Wausau Paper Mills Company, $727; Marathon Paper Mills Company, $5,007; Mosinee Paper Mills Company, $4,315; Wisconsin River Paper and Pulp Company, $10,157; Whiting-Plover Paper Company, $210.

George E. McKowen Resigns

George E. McKowen, for many years secretary and director of sales for Hummel and Downing Company, Milwaukee, Wis., has resigned, according to announcement of Morris Sayre, chairman of the board. After spending thirteen years as a railroad employee, Mr. McKowen became identified with Hummel and Downing. His first job was to work out freight classifications for the fiber board shipping industry. He became secretary and sales director in 1918.

Safety Meeting Well Attended

Approximately 800 attended the first of four safety meetings jointly for mill employees of Neenah and Menasha, Wis., held last week at the auditorium of Neenah high school. John C. Simonich of Kimberly-Clark Corporation was the chairman, and music

(Continued on page 31)

Canada Not Afraid of American Competition

Montreal Report States Canadian Pulp and Paper Men Are Unperturbed At Possibility of Future Competition of New Texas Newsprint Mill — Canadian Pulp and Paper Association To Hold Its Annual Convention.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., January 23, 1939—According to a story appearing in the Montreal Gazette, Canadian pulp and paper men are not perturbed over possible future competition from the projected $6,000,000 newsprint mill in Texas, on which work has just been started. It is stated that according to officials of the Forest Products Laboratories of Canada and the Canadian Pulp and Paper Association, the quality of newsprint which can be produced from Southern pine is considerably inferior to the Canadian product.

"They're merely trying to apply directly our Northern technique to their Southern wood. Unless the publishers in the big American cities change their ideas our market won't suffer to any extent. The southerners hope to sell to southern publishers, largely on the grounds of local patriotism, who might take a product not up to the standard of ours," one expert is quoted as saying.

"Canadian mills are aggressive, well managed and well organized. But this southern development does show that it would be worth while for Canada to spend money on research, to keep our technique up to the highest possible point," he continued.

Southern wood which can be pulped and bleached efficiently, it is further said, is resistant to grinding, and furthermore it is believed that the lack of cheap power in Texas, needed to produce newsprint, will offset the cheapness of the wood. However competition in the kraft paper line from Southern mills has already been noticed by Canadian firms.

Canadian Pulp and Paper Association's Meeting

At the time of writing prospects are that the 26th annual meeting of the Canadian Pulp and Paper Association, to be held here on January 25, 26 and 27, will be highly successful both in point of view of attendance and of the presentation of informative papers on the operating and technical sides of the pulp and paper industry. Much interest centers in the visit of D. C. Everest, the president of the American Pulp and Paper Association, who is to give an address at a joint luncheon of the Technical and Woodlands Sections, and in the visit of Burt P. Kirkland, principal Forest Economist of the United States Forest Service, who is to address the Woodlands Section on "The Basis of Forest Policy in the United States."

Technical Papers to be Presented

The technical papers to be read and discussed at the meetings of the Technical and Woodlands Sections are as follow: At the Technical Section's meetings—"The Bell Drying System," by L. C. Anderson, Ontario Paper Company; "Pyrite and Other Sources of Sulphur in Canada," Carl D. Jentz and Horace Freeman, Consolidated Paper Corporation; "The Groundwood Mill and Its Relation to High Speed News Operation," J. D. Brown, Canadian International Paper Company; "Refining of Groundwood Screenings," E. D. Hyndman, and "Batch Refining of Groundwood Screenings," W. W. Holland, Ontario Paper Company; "Continuous Refining of Groundwood Screenings," H. B. McAdam, Quebec North Shore Paper Company; "The Use of the Haug Refiner for Groundwood Screenings," H. A. Paterson, Mersey Paper Company; "Studied in Cellulose —Moisture Phenomena," Drs. O. Maass and W. Boyd Campbell; "Suitability of Wood for Acid Pulping," H. Green and Dr. F. H. Yorston; "Lignin Investigations," D. H. Hibbert; "Slime Troubles," discussion led by summary of replies to recent questionnaire, W. A. Ketchen, Fraser Companies; "Progress in Removal of Dirt from Pulp and Paper," H. Freeman and C. H. Skelton, Consolidated Paper Corporation; "Suction Box Covers," discussion led by summary of replies to recent questionnaire, W. B. Scott, Consolidated Paper Corporation; "Moisture in Fine Papers Made from Wood Pulp," J. B. Beck, E. B. Eddy Company; "Sodium Aluminate in Paper Making," T. W. Westlake, Provincial Paper Limited; "Boiler Water Treatment," W. G. Scott, Howard Smith Paper Mills; "Colloids in Boiler Water Treatment," Dr. L. D. Betts; "Board Mill Stock Preparation," J. C. Nutter, Gair Company, Canada; "Requirements of Folding Board," W. Boyd Campbell. There is also to be a discussion on the report of the Standards Committee in regard to (a) Disintegration of lapped groundwood for freeness tests; (b) Use of aluminum foil for check of Mullen testers; (c) Polished or dull plates in standard sheet making.

Papers to be Read at Woodlands Section

At the meetings of the Woodlands Section, the papares to be presented are: "Woods Labor," L. A. Nix, Bathurst Power and Paper Company; "Co-operative Projects," T. A. McElhanney, Forest Products Laboratories of Canada; "Truck Manufacture for the Logging Industry," C. S. Thicke, Hayes Manufacturing Company, Vancouver; "Logging with Tractor and Arch," L. R. Scheult, Singer Manufacturing Company; "Tractor Logging Carts," J. D. McNeil, Williamette Hyster Company, Portland, Ore.; "International Movement of Pulpwood," R. S. Kellogg, News Print Service Bureau, New York; "Paper Bag Containers for Forest Operations and Mill Supplies," T. H. Cosford, Bates Valve Bag Company; "Corrugated Paper Boxes for Woods Supplies," John Hayes, Shipping Containers Limited; "Fire Control Plans," G. D. Ellis, Bathurst Power and Paper Company, and H. W. Beall, Dominion Forest Service; "Deterioration of Insect Killed Timber," C. G. Riley, Division of Plant pathology, Dominion Department of Agriculture; "Silviculture," W. A. E. Pepler, Canadian International Paper Company; "Logging Production Standards and Costs," W. A. Ab-Yberg, Canadian International Paper Company; "Pulpwood Transportation Problem," F. O. White and C. C. Atkinson, Fraser Companies; "New Uses for Bulldozers," W. R.

Brown, Brown Company; "Co-operative Forest Insect Survey," J. J. deGryse and A. W. A. Brown, Division of Entomology, Dominion Department of Agriculture; "Spruce Sawfly Outbreak in 1938," R. E. Balch, Division of Entomology; "Biological Control of Spruce Sawfly," A. B. Baird, Division of Entomology.

Increase in Canadian Newsprint Capacity

Due to improvements in the productive efficiency of existing machines and to the tuning up to full operation of the new mill at Comeau Bay, Que., the year starts out with a slight increase in the Canadian newsprint industry's productive capacity as compared with 1938. The increase amounts to some 103,000 tons, or approximately 2.4 per cent. It is interesting to note, however, that in 1939, due to the fact that the year will have 53 Sundays, something which occurs but once in fourteen years, the number of working days will be 308, against 309 in 1938, and hence the effective capacity for the year will be 4,293,400 tons, instead of 4,307,300. The rated capacity per day for 1939 is 13,940 tons, against 13,606 for 1938.

Build Plant at Sydney, N.S.W.

SYDNEY, N. S. W., December 23, 1938—Herbert Dennis & Odling advise a contract for the erection of a plant for the manufacture of insulating board, for the Building Materials Division of The Colonial Sugar Refining Company Limited on a water-frontage of 600 feet adjoining the company's sugar refinery at Pyrmont, Sydney.

This factory, which is designed for the manufacture of all grades of Cane-ite building boards, will have a floor area of 108,200 square feet, and will be the largest and most modern in the Southern hemisphere for this class of product. The initial capacity of the plant when completed will be approximately 30,000,000 square feet annually.

The building will be of reinforced concrete throughout, and will include a main two story building 590 feet long x 63 feet high x 65 feet wide, designed for straight line production and warehouse handling, and in addition there will be a multi-story wing 82 x 80 x 83 feet high in which the preparatory manufacturing processes will be carried out.

The entire factory will be faced with red brick and the architectural treatment will emphasize the lengths of the building by the continuous lines of horizontally proportioned windows broken only by the structural concrete columns, while contrast is given by a vertically treated block housing the administrative offices etc. The main entrance to the factory will be from the corner of Bowman street at the approach to the Glebe Island Bridge.

Herbert Dennis & Odling are the supervising architects in association with the Engineering Department of the Colonial Sugar Refining Company Limited.

Concrete Constructions Proprietory Ltd. are the contractors and A. S. McDonald & Wagner are consulting engineers for the contractors.

M. B. Claff & Sons Incorporate

[FROM OUR REGULAR CORRESPONDENT]

RANDOLPH, Mass., January 23, 1939—M. B. Claff & Sons, Inc., paper products, have incorporated with a capital of $125,000. Incorporators are Chester E. Claff, Leslie A. Claff and Warren L. Claff, Randolph.

Plans for National Paper Trade Exhibit

Paper Week next month marks the 36th annual meeting of the National Paper Trade Association. The convention dates are February 20-23 inclusive, providing a four day program. It was felt that the three day schedule tried last year was too crowded to obtain the best results. As usual, some preliminary meetings, including the meeting of the executive committee, will be held on Sunday, February 19, the day before the general program opens.

Conditions in the trade and intentions already reported promise the largest and most constructive meeting held by the Association for a long period of time. In the Fine Paper Division, a vast amount of work has been done since the fall convention on which the membership will receive full reports with every opportunity for open discussion. The vigorous efforts that have been made to increase membership and arouse greater interest in the Wrapping Paper Division will come to a focus and plans will be completed for continued activity along all constructive lines. In the normal course of events, a new executive will be elected as vice president in charge of the Wrapping Paper Division.

The exhibit of wrapping paper, paper products and kindred lines has become a permanent feature of the association's conventions and will again occupy the entire ninth floor of the Waldorf which has been reserved by the hotel for assignment of space by the committee in charge, consisting of R. W. Miller, The Central Ohio Paper Company, Columbus, chairman; C. E. Roach, Capital City Paper Company, Springfield, Ill., J. S. Addison, Service Paper Company, Racine, Wis., and H. A. Hartinger, Anchor Paper Company, St. Paul, Minn.

Great interest has been shown and many manufacturers and converters have already signified their intention to participate. The success of these exhibits and the number of those participating has increased with each renewal and the affair is now looked forward to by manufacturers and converters as the best opportunity for displaying their lines and introducing new items to the merchant trade. From the members' point of view, the educational advantages of the exhibit alone are more than sufficient to repay convention attendance irrespective of the important work and invaluable information developed at the business sessions.

Government Paper Bids

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., January 25, 1939—The Government Printing Office has received the following bids for 10,300 sheets of white railroad board: R. P. Andrews Paper Company, $43.60 per M sheets; and Barton, Duer & Koch Paper Company, $41.35.

For 5,000 pounds of No. 1 gummed kraft paper: Resolute Paper Products Corp., 7.35 cents less 2 per cent; Mudge Paper Company, 7.01 cents; Enterprise Paper Company, 7.34 cents less 2 per cent; Thomas Barrett & Son, 8.17 cents; R. P. Andrews Paper Company, 7.55 cents; Whitaker Paper Company, 7.52 cents; Walker, Goulard Plehn Company, 7.6 cents less 2 per cent; Mathers-Lamm Paper Company, 7.59 cents; Andrews Paper House of York, 7.5 cents; Cauthorne Paper Company, 7.48 cents; Old Dominion Paper Company, 8.69 cents; Rexford Paper Company, 10 cents; and National Consumers Paper Company, 6.95 cents less 2 per cent.

Midwest Paper Trade Reports Larger Sales

Better Than Normal Replenishment of Stocks Indicated By Higher Sales Volume By Chicago Paper Merchants—E. O. Merchant Conducts Chicago Meetings—George Cobean Is Guest Speaker At S. A. P. I. Meeting.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., January 23, 1939—The Chicago paper market reported this week that volume was better than for some weeks past with the amount of sales indicating an even more than normal replenishment of inventories. The test will come within the next few weeks, however, as the trade observes the pace of demand after inventory requirements have been purchased. The under current is reported as good by local observers though the price situation continues to give a good deal of concern in certain spots.

Kraft reports of continued demand are numerous and general with indications of definite firming while the sulphite bond market is also recorded as more than fair. Groundwoods also voiced a degree of optimism while newsprint papers were also reported in improved shape. Books held an improved position after some uncertainty while covers were more active according to local handlers. The board market was in better volume. Waste papers were little changed with the demand continuing slow and the supply reported to be fairly large as marked accumulations have taken place.

George Cobean S.A.P.I. Guest Speaker

George Cobean, president of the National Paper Trade Association, was the guest speaker at the first meeting of the new year held by the midwest division of the Salesmens Association of the Paper Industry. Mr. Cobean discussed mill and merchant relationships, outlined the value of a high degree of cooperation between the two interests and urged the development of full harmony to speed up results in the papare trade. At the same meeting, announcement was made that Frank Prentiss of Hollingsworth & Whitney, would again serve as the chairman of the Transportation Committee charged with lining up a representative delegation for the February meetings of the National Paper Trade Association. James Coy, Sr., Harold Knott and Fred Whitely were also named members of the nominating committee to prepare a slate for the elections which will be held on February 21 in connection with the annual luncheon of the Salesmens Association.

E. O. Merchant Conducts Chicago Meetings

Dr. E. O. Merchant, secretary of the Ground Wood Association, was in Chicago this week conducting meetings of that organization. Dr. Merchant was also the guest of the midwest division of the Salesmens Association of the Paper Industry at the Monday, January 16, meeting of that organization. He spoke briefly and provided the salesmen with some interesting statistics to indicate why he was fairly optimistic over the immediate business outlook.

New Illinois Legislation Impending

The Illinois Legislature took sufficient time this week to introduce a number of measures which will be of interest to paper manufacturers and representatives in Illinois. Included among the list were bills to increase the weekly benefits under workmen's compensation statutes from 50 to 66⅔ per cent and also to amend the occupational disease act in a similar way. Representative O'Neill also introduced a bill imposing a two per cent tax on the gross receipts of manufacturers, designed to replace the sales tax which the representative described as "discriminatory." A bill providing for a five day week was also introduced along with a number of labor measures. The State budget also included an increase of over one million dollars to permit the Department of Finance to employ more civil service auditors for increased enforcement of the Retailers Occupation Tax. State wage-hour legislation, "baby" Wagner legislation and anti-picketing legislation, while expected, have not as yet made their appearance.

Want Cape Vincent Harbor Developed

[FROM OUR REGULAR CORRESPONDENT]

CAPE VINCENT, N. Y., January 23, 1939—Several other prominent concerns in this section are greatly interested in plans calling for the development and dredging of the local harbor under government supervision. A communication filed by the Hall Corporation, of Canada, at a hearing declared that the harbor will never be a safe port for traffic without some dredging. The company has been working for several years on the possibility of handling pulp wood and other commodities through the port but early in October when one of its vessels docked here it incurred additional handling charges in lightening part of the cargo into booms as well as damages in trying to dock the vessel in insufficient water.

Prominent paper mill men believe that adequate harbor facilities would not only be of material benefit to the village itself but also to the entire Jefferson County. It is pointed out that adequate harbor facilities would allow water transportation of shipments of pulp wood, soft coal and sulphur to the various paper mills in this vicinity. The reduced cost of such shipments, it is claimed, would be of material aid in keeping industries operating, maintaining present investments and in keeping the men employed. Formerly there were many more mills in this vicinity than at the present time but partly due to necessity of obtaining new sources of wood supply some of these mills were abandoned.

Monorail Handling Equipment

In a 47-page booklet just issued by the American Monorail Company, 13807 Athens avenue, Cleveland, Ohio, the application of monorail equipment to varied industrial uses, including the handling of rolls of paper, is largely represented in pictorial form. The points of advantage may be summarized as including a twin section track, over-lapping splice, one-piece hanger, balanced section design, heavy web thickness, narrow track flanges, compact electrification, and rubber wheel drive.

Minister Heenan Urges Conservation Policy

Present Plan of Government Should Be Followed By Cutting Only Mature Trees To Safeguard Pulpwood Supply — West Canadian Paper Trade Improves — Canadian Box Manufacturers' Assn. Meets

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., January 23, 1939—Hon. Peter Heenan, Minister of Lands and Forests for the province of Ontario, last week paid a visit to the pulp and paper cities of Port Arthur and Fort William. He met a delegation from the Great Lakes Paper Company, Limited, who urged government cooperation in increasing newsprint employment at the lakehead. It was pointed out that while curtailed production at the Great Lakes paper mill had been in effect for months, a full staff had been maintained by the sharing of hours with resultant slimmer pay envelopes. Proposal was also made to Mr. Heenan that large numbers of men should be put at work cleaning up slash in wooded townships but he reported that no funds are available for a project of this nature. Speaking at Simcoe, Ont., Mr. Heenan said that conserving the timber resources of Northern Ontario by stipulating that only mature trees should be cut and the younger trees left to attain full growth is the provincial government policy.

Minister of Lands Comments on Newsprint

Commenting upon the newsprint industry, Mr. Heenan, at Fort William, declared that it was in receivership practically all over Canada, a fact brought about by "industrial inefficiency." The government was partly to blame for encouraging the construction of some of these plants. "We have," he added, "an annual production of 3,000,000 tons with enough plants idle to practically double that amount." Referring specifically to the Great Lakes Paper Company he said that the mill was ready to "put up the shutters" when a Quebec company stepped in and took away its contract with a Detroit publisher. Following protests by the Ontario government the contract was returned to the Great Lakes Company and "still they are cutting prices behind our back."

"We undertook to rectify the condition of price cutting to keep wages up and spread the labor over the provinces of Ontario and Quebec. We decided that the governments would take legislative measures against any company cutting prices and orders for newsprint were distributed on a pro rata basis. Now the Great Lakes Company has a plan whereby they would pay a dividend of $2 per ton to publishers in the United States and we had a fight over that. That means that on every ton which would be shipped from Fort William there would be two dollars to put in the pot to pay the dividend. Any man can go out and get business by selling at a lower price. Some day these publishers will own the mill without having put a nickel into it. The Great Lakes Co. are getting more than a square deal right now. There are agreements in existence for mills along the North Shore and we are keeping the companies to those agreements," he concluded

West Canadian Paper Trade Improving

A. C. Hunt, president of Mid-West Paper Sales, Limited, Winnipeg, and Gilbert Garnett, general manager of the company, are spending a few days in the east calling upon old friends in Toronto, Montreal and other cities. They report that the paper business in the West which has been quiet for some weeks, is showing signs of improvement and they are looking forward to a better year in 1939 than in 1938.

In a number of cases in years past paper mills have operated on Sunday in filling rush orders and when convicted a fine has been levied against the plant or the company. To remedy this and place the onus where he considers it personally belongs, H. E. Brunelle, M.P., will introduce this session in parliament at Ottawa a bill to provide jail sentences for directors or other officials of a corporation who order work done on Sunday in violation of the Lord's Day Act.

Unemployment in Ontario Province

Unemployment has been on the increase in the province of Ontario during the past few weeks. Hon. Eric Cross, Minister of Municipal Affairs and Welfare, is urging immediate tightening up of relief administration and says the worst situation exists in the town of Sturgeon Falls, Ont., where fifty-four per cent of the total population is receiving direct assistance. This place some years ago was one of the busiest pulp and paper centres in Ontario. Recently a proposition was made by business men to re-open operation of the Abitibi pulp plant there but the company rejected the offer on the ground of insufficient capital not being behind the project.

Canadian Box Manufacturers to Meet

The annual meeting of the Canadian Paper Box Manufacturers Association will take place in Toronto at the Royal York hotel on February 27. It is not likely that a summer convention will be held this year in Ontario but instead the members will attend the gathering of the American Paper Box Manufacturers Association which will be held in New York in June next.

Duty in Newsprint Removed

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., January 23, 1939—The basic import duty on newsprint paper entering the Netherlands Indies has been reduced effective January 1, 1939, according to a recent promulgation in India reported to the Department of Commerce by the office of the American Trade Commissioner at Batavia.

This reduction had been strongly urged by publishers in the Netherlands Indies for some time, arguments having been advanced for it because of the rising cost of newsprint and the essential need for a cut in publishing costs, the Trade Commissioner stated.

Officials there stated that newspapers in the Netherlands Indies would be substantially benefitted by the duty reduction, according to the report.

Study Course Opens With Large Enrollment

One Hundred and Forty-five Salesmen From Leading Paper Houses Enroll In Study Courses Sponsored By Paper Trade Association of Philadelphia—Paper & Cordage Association Holds First Meeting of the Year.

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., January 23, 1939—"The paper merchants of your city have thrown their energies and facilities into the training of the salesmen of their competitors." With this statement by Frank Vaughan, president of Bay West Paper Company, the first session of the 1939 Study Course for Salesmen, conducted by the Paper Trade Association, opened on Tuesday evening of last week in Franklin Institute. The series of lectures will deal with the subject of "Sell More—Earn More" and will include ten demonstrations together with sales talking pictures. One hundred and forty-five salesmen enrolled in the course sat through introductory remarks by William A. Hentz, of Thos. W. Price Company and Ormond Friele, Paper Merchants, Inc. The students were then turned over to R. C. Borden, a salesman of national reputation, and Frank Vaughan, Bay West Paper Company, and president of the Paper and Twine Club, who were introduced by the president of the Association, W. B. Killhour. During the presentation of the pictures, prepared by Mr. Borden, the interest was so intense that you could have heard a pin drop. The film, entitled "Take the Ice Out of Price", depicted by actual selling demonstrations how this could be made possible through four factors, Desire, Comparison, Pride, Profit. Following the pictures, Mr. Vaughan took over the meeting and interpreted the selling points contained in the pictures into terms of selling paper, and there was unanimity of opinion that both Mr. Borden and Mr. Vaughan had done a mighty fine job.

Salesmen From Leading Distributors Register

Doris E. Lewis, executive secretary of the Association, reports registrations of one or more salesmen from the following houses: Atlantic Paper Company, Bentley Paper Company, G. A. Bossler, Champion Paper & Fibre Company, Dee Paper Company, Enterprise Paper Company, Dill & Collins, Inc.; Gallen Paper Company, Garrett-Buchanan Company, A. Hartung & Company, J. R. Howarth Paper Company, W. C. Hamilton & Sons, Hollingsworth & Whitney, Irwin F. Megargee, 3rd, Molten Paper Company, Paper Manufacturers Company, Inc., Paper Merchants, Inc., The Thos. W. Price Company, Progressive Paper Company, Quaker City Paper Company, Raymond & McNutt Company, Satterthwaite-Cobaugh Company, The J. L. N. Smythe Company, Schuylkill Paper Company, Terminal Paper Company, D. L. Ward Company, Whiting-Patterson Company, Wilder Brother Company and S. Walter, Inc.

Paper & Cordage Association Meets

J. R. Howarth, newly elected president of the Philadelphia Paper & Cordage Association, opened the first meeting of the year of the Association at the Hotel Adelphia on Friday last, with the following admonition: "If you are a member of the Philadelphia Paper & Cordage Association, you have got to have a first name and use it." After quoting from the by-laws of the Association, president Howarth dedicated himself to the task of really promoting good fellowship, interchange of ideas and business among the members. With enthusiastic singing of some old favorite songs with Raymond Armstrong at the p'iano, there was an informal and friendly get-together. Kent Lay, George Hooper and Howard Satterthwaite and others in the membership expatiated on the good work and accomplishments of the Association. George Hooper, under whose able direction, the Buyers Guide is being collated, announced that the deadline for the inclusion of letterheads by members has been set for February 1st. The Directories, he said, will be distributed at the February meeting and will contain in addition to the sales messages of the members, a printed index of all companies represented.

Buyers' Guide Promotes Business

As a concrete example of the favorable influence for the interchange of business, brought about by the Buyers Guide, president Howarth distributed among the members a dozen orders for various products which they handle. These orders were given to Mr. Howarth by a few of the members who made this gesture to show that they are heartily in accord with the principles for which the Association stands, and which definitely make an effort toward helping their fellow members enjoy better business. The latest addition to the membership is the Buff-Henley-Dwyer Paper Company, 230 S. 30th street, a newly established company in the paper business, who will act as jobbers and manufacturing distributors.

Pulp Arrivals at Albany

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., January 16, 1939.—A rush of business faced the local port terminal this week with five vessels at the docks and four more pulp ships coming from overseas. Up to December 1 the port has had 228 ocean ships this year compared to 173 for the same period of last year. Cargoes, however, are expected to total about the same as in 1937 owing to a falling off in tonnage volume in both intercoastal and foreign trades. Port officials declared that pulp is moving through the warehouses directly to freight cars under the embargo placed in October when storage space was exhausted. Among the latest ships to dock here is the Peggy Thordon from Wiborg, Finland, carrying 2,000 tons of wood pulp. The vessel experienced difficulty in reaching here because of heavy storms and established a record long distance crossing of the Atlantic by spending thirty days at sea.

Financial News of Pulp and Paper Industry

R. F. C. and Dexter Sulphite Attorneys To Meet In Effort To Avert Liquidation Proceedings — Lake Sulphite Situation To Be Discussed — Victoria Paper Mills New Officers — Pusey & Jones Elects President.

NEW YORK STOCK EXCHANGE

High, Low and Last for the Week Ending January 25, 1939

	High	Low	Last
A. P. W.	2½	2½	2½
Armstrong Cork Co.	52½	47½	47¾
Celotex Corp.	18¼	15	16⅛
Certain-Teed Products Corp.	12	9¾	10¼
Certain-Teed Products Corp., pf.	44⅝	40	40
Champion Paper & Fibre Co.	26½	25	25
Champion Paper & Fibre Co., pf.	100½	99½	100
Congoleum-Nairn Co.	28¼	26⅛	26¼
Container Corp. of America	15	13⅛	13⅛
Continental-Diamond Fibre Co.	9½	8½	9
Crown-Zellerbach Co.	14	12	12¾
Crown-Zellerbach Co., pf.	90	86	86
Flintkote Co.	29	25⅛	26⅝
Robert Gair	3¾	3	3¼
Robert Gair, pf.	13⅞	11	11
International Paper & Power	13¾	11¼	11⅝
International Paper & Power, pf.	48½	43	43½
Johns-Manville Corp.	102¼	91¾	92⅛
Johns-Manville Corp., pf.	130	130	130
Kimberly-Clark Corp.	27	25	25
MacAndrews & Forbes	32	32	32
Masonite Corp.	54	48½	48½
Mead Corp.	11½	9⅜	10
Mead Corp., pf.	57	51	51
Paraffine Companies, Inc.	58¾	54	54
Paraffine Companies, Inc., pf.	102	102	102
Ruberoid Co.	31	27	27
Scott Paper Co.	46⅝	45¾	46
Sutherland Paper Co.	29⅞	28	28
Union Bag & Paper Corp.	11⅜	10	10¼
United Paperboard Co.	6¾	5¼	6
U. S. Gypsum Co.	107	100	101
U. S. Gypsum Co., pf.	175	173	173

NEW YORK CURB EXCHANGE

High, Low and Last for the Week Ending January 25, 1939

	High	Low	Last
American Box Board Co.	8½	8	8
Brown Co., pf.	18¾	16½	16½
Great Northern Paper	38¾	38½	38½
St. Regis Paper Co.	3¼	2¾	2⅞
Taggart Corp.	5	4⅝	4⅝

Dexter Attorneys to Meet With R. F. C.

[FROM OUR REGULAR CORRESPONDENT]

DEXTER, N. Y., January 21, 1939—Attorneys for the Dexter Sulphite, Pulp and Paper Company have announced that a conference is to be held with the Reconstruction Finance Corporation at Washington in the hope of stopping liquidation proceedings so that the plant may continue in operation. The R.F.C. is the holder of a $350,000 first mortgage against the concern and it is claimed that the determination of the present control to close the plant permanently this week and throw 300 hands out of employment preliminary to liquidation is without the approval of the federal organization. Attorney A. R. Cornwall, who has represented the First National Bank which will be vitally affected by the closing of the mill, will attend the conference. He has previously represented the bank in efforts to have the officers and directors of the company continue operation of the plant. A statement this week by Mr. Cornwall points out that certain officers of the company are attempting to liquidate it and wind up its affairs. This liquidation is being seriously opposed by certain of its creditors, the employees and neighboring communities upon the ground that the concern is entirely solvent, has sufficient capital to carry on, and can continue as a going concern. He stated that liquidation has been started without the consent or approval of the R.F.C., the holder of a first mortgage lien amounting to $350,000. An appeal was made to the government organization to prevent liquidation and save the industry with the result that certain negotiations are now pending whereby it is hoped that the mills can be kept operating, if not under the present management then under the management of a receiver. Mr. Cornwall concludes by stating that the publicity which has taken place and the interviews given out have tended to demoralize the organization, destroy the company's trade, and make the employees not only unhappy but greatly confused. The concern is the chief industry of this place and its discontinuance would cripple the business of the community, throw a large number of people on relief and threaten confiscation of many homes because of inability to meet taxes.

Canadian Group May Supply Capital

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., January 23, 1938—While developments in connection with the defunct Lake Sulphite Pulp Company, Limited, Red Rock, Ont., do not include a former interest displayed by a group in the United States, there is some confidence among holders of the company's securities that a Canadian group will organize to supply the necessary capital for completing a bleached sulphite mill or preferably a rayon pulp plant. Any capital reorganization it is expected would provide about fifty per cent cash for the creditors and securities for the balance. It is learned that sale of about thirty thousand cords of pulpwood has been made by the receiver. This leaves a thousand cords that are stored near the site of the mill. No new wood is being cut this winter, operations consisting chiefly of completing the drive of last year's cut to the mill. A meeting will be held in Toronto on February 1st to deal with the Lake Sulphite Pulp Company situation.

W. L. Forsyth Heads Victoria Paper Mills

FULTON, N. Y., January 23, 1939—Wilfred L. Forsyth of South Fourth street, was elected president of the Victoria Paper Mills Company of this city at their annual meeting held recently in their offices in North First street. B. I. Reider was elected vice president and treasurer; Mrs. Jessie S. Joy, vice president; Fred T. Joy, a member of the board of directors; James K. Carroll, secretary, and Floyd Dresser, comptroller.

Heads Pusey & Jones Corp.

WILMINGTON, Del., January 23, 1939—Andrew G. Spiegelhalter of Wilmington has been elected president of the Pusey & Jones Corporation, builders of ships and paper machinery. He succeeds J. P. Pulliam of Milwaukee, who was elected president of the board. He has been vice president and general manager of the company.

Grant Richardson Speaks at Meeting of Carter Rice & Co., Corp

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., January 23, 1939—Grant Richardson, recently appointed Eastern sales manager of the Hammermill Paper Company, Erie, Pa., was a speaker at a sales meeting of Carter, Rice & Co. Corporation, held January 14, at the office of the company. Besides Charles Peto, also of the Hammermill Company, 34 members of the Carter-Rice organization were present.

F. H. Winter, sales manager of the Carter-Rice Company, who presided, called attention to the "Linton Idea Clinic", to be held January 25 and 26 in the Chamber of Commerce Building by Linton Brothers & Company, stressing the importance of mentioning this display of prize winning entries to be on exhibit there to the printers and advertising agencies in this territory.

Merchant Distribution

Mr. Richardson emphasized the importance of merchant distribution to Hammermill, stating that it represented figuratively 99.44 per cent of their entire business and as the merchant salesmen throughout the country were successful, so was Hammermill successful. It was not, therefore, as representing the mill to the merchant, but rather as representing the merchant to the mill and carrying the problems of the merchant back to the boys at the mill to wrestle with, which would result in the greatest mutual helpfulness.

In mentioning the most recent addition to the Hammermill line, Hammermill Opaque, he initimated that although this paper was later in getting into the field, it was purposely planned at the mill with the realization on the part of the manufacturers that they had an obligation not only to themselves but to the merchants in bringing out any new line. It was necessary to make sure that the line was a permanent feature and that whatever they produced in the field would stand the test of competition with what might already be on the market. He felt that Hammermill Opaque, after long study and experimentation, met this test successfully.

Mr. Richardson spoke of the tremendous tonnage in the field of cut papers, such as mimeographs, duplicator papers, etc., apart from those papers that are sold in the flat sizes to the printing field, reporting that Hammermill was issuing a book which would explain in detail the duplicating processes and tell of the machines now extant that use this type of paper.

Specialty Papers

He touched on the possibilities of specialty papers, many of which Hammermill makes, apart from the mill advertised lines. They do represent additional business, in many cases non-competitive, swelling the tonnage and profits both of the merchant and the mill. He alluded specifically to certain orders which they have today at the mill on Map Bond for the American Automobile Association, running into large tonnage, and to Braille Manuscript paper, which they make both for the dry and wet process. He stated that Manuscript Braille, as a result of wide experimenting, is outstanding among the papers in this field. He spoke of Ticker Tape paper; the Safety Paper base stock made with quick ink penetrating qualities; special design box and wrapping papers, such as Imitation Cedar; Radio Script, which should be a firm sheet, but without rattle, and for which Hammermill Mimeograph has proven to be well suited.

New Uses for Hammermill Products

Mr. Richardson mentioned the zest he had been able to maintain for twenty years during his selling experiences on the road with Hammermill through exploring the possibilities of new uses for Hammermill products. He urged the Carter-Rice men to be constantly on the lookout for new uses for paper in order to maintain a fresh interest. While not in favor of high pressure salesmanship and feeling that most schools of salesmanship were over-rated, he commented on the value of an idea which developed from one of the Hammermill sales conferences—namely, the importance and wisdom of talking to a prospect in terms of the benefits which would accrue to the prospect if he bought your product or service. By presenting that angle of thought to the customer, Mr. Richardson felt sure that the salesman would be more likely to create good will and business than through high pressure methods.

In a question period which followed his talk, Mr. Richardson developed the fact that colors might some day be added to the Hammermill Offset line, but that this would increase the inventory burden imposed upon the merchant, who, like the mill, is already having a tough time to secure adequate turnover on his stock. They would, therefore, undertake to enlarge no line except after the most careful analysis of the opportunities presented.

Newsprint Affected in Czechoslovakia

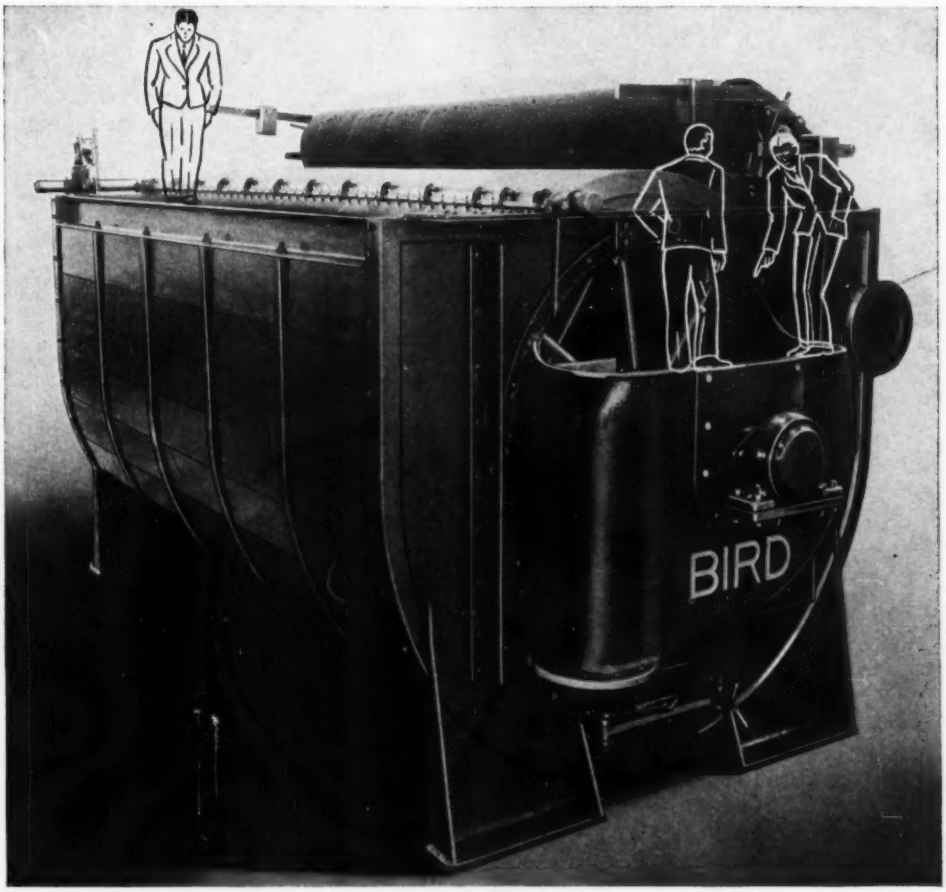
The newsprint industry in Czechoslovakia has been more affected by the territorial readjustments of the country than any other section of the paper industry except the soda pulp section which is now completely lost, according to reports from the office of the American Commercial Attache, Prague.

According to best available estimates, the installed capacity of newsprint mills within the confines of the former Czechoslovakia was 60,000 metric tons. Now it is estimated that capacity for the production of only 12,000 tons remains in new Czechoslovakia. If these estimates are correct, it is possible that the country will have a shortage of 15,000 to 18,000 metric tons of newsprint per annum, a shortage which may be covered by imports from Germany (Sudetengau).

The capacity of the two newsprint mills in operation left within Czechoslovakia is only 11,000 tons, while the capacity of the third mill, which has been idle for many years under Cartel agreements, is 1,000 metric tons.

Better Look into this

BIG NEW BIRD SAVE-ALL



You can make more money out of white water with this Save-All . . . It has the capacity to assure maximum fibre recovery. It fits into a wide range of papermaking layouts neatly and economically . . . Whatever your volume of production and whatever grades you make, we think we can show you how to get a higher net profit per pound of fibre recovered and gallon of water re-used. May we have a chance to prove it?

BIRD MACHINE CO., SOUTH WALPOLE, MASS.

BIRD SAVE-ALL

Pacific TAPPI Meets at Port Angeles

The Pacific Section of the Technical Association of the Pulp and Paper Industry held its third dinner meeting on January 10, 1939, at Port Angeles, Wash. N. W. Coster, chairman, called the meeting to order and announced that the National TAPPI meeting is to be held in the Roosevelt Hotel, New York City, on February 20-23, 1939. The fall meeting is to be in Syracuse, N. Y., September 12-14, 1939.

Tribute to Mr. Cox

Tribute was paid to J. V. B. Cox, secretary of the Pacific Section of TAPPI for the work he has done for this section. Mr. Coster stated that the illness which had fallen on Mr. Cox prevented him from further participation as secretary of the TAPPI Section, but that he was pleased to announce that Mr. Cox was recovering. W. M. Osborne was introduced and Mr. Coster paid tribute to the courage of the latter in carrying on during the painful and slow recovery from his accident. E. J. Cavanaugh, who had charge of arrangements for the dinner was given the appreciation of the assembly.

Mr. Coster explained that the two papers to be presented were the first in competition for the Shibley Award and the mill men were encouraged to submit papers in this competition. Mr. Coster called for them not to enter the competition merely for the prize, but to gain the experience of preparing a paper on a timely and interesting subject and present it before a meeting. The Shibley Award was explained.

The attendance at the dinner was 68. A few others came to the meeting which followed.

The assemblage seemed quite enthusiastic and were very attentive to the two papers presented, entering into inquiry and discussion of the papers. The papers presented were, "The Meta-Bisulphite Method for Determination of Residual Chlorine," by A. Orup and R. I. Thieme, Soundview Pulp Company, Everett, Washington. The latter presented the paper orally. The audience was very attentive and the discussion following was good.

The second paper was presented by Robert M. Kuhn, St. Regis Kraft Company, Tacoma, Washington. The title was, "Investigation of the Sources and Characteristics of Dirt in Bleached Sulphate Pulp." When this paper was read, the audience was attentive and the following discussion showed that a number of those present were appreciative of the survey on the problem of mill dirt.

Summary of Papers

The summary of Messrs. Orup and Thieme's paper is as follows: Meta-sodium bisulphite ($Na_2S_2O_5$) is a satisfactory reagent for the determination of residual chlorine. It has several desirable properties:

1. Its pH characteristics make possible the determination of the chlorine present without disturbing the equilibrium conditions within a solution of residues.
2. It gives an excellent and permanent end-point.
3. It is quite stable. By the use of a simple apparatus it can be kept stable for more than two days.
4. It is readily prepared and standardized.

Mr. Kuhn's paper contained a key to dirt analysis showing the indication of shives, slivers, carbonate or sulphide, steel or iron, copper or brass, char or carbon, rubber, resin, silica or glass, knots, bark, oil or grease.

Both papers were published in the January 1939 issue of the *Pacific Pulp and Paper Magazine.*

DISCUSSION OF PAPER BY ORUP AND THIEME

H. T. FRETZ: In standardizing the meta-bisulphite against the chlorine solution, how, in the first place, can the strength of the chlorine solution be determined? Is the arsenite method accurate?

R. I. THIEME: The arsenite test gives accurate results in alkaline solutions.

A. ORUP: In the chlorine plup liquor used in standardizing there are no foreign materials such as chlorinated lignins.

H. T. FRETZ: What is the composition of meta-bisulphite and how is it made?

A. ORUP: It consists of two molecules of sodium bi-sulphite which appear to be joined together with the omission of one molecule of water.

JERRY ALCORN: How does this method compare with testing with thio-sulphate?

R. I. THIEME: Arsenite solution gives truer results than the thio-sulphate KI. In the meta-bisulphite truer results in determination of residual chlorine in acid chlorinated pulp solutions are obtained.

W. M. OSBORNE: When the solution to be tested is diluted with distilled water, do reasonable differences in the quantity of dilution water change the results?

R. I. THIEME: Under reasonable differences in solution concentration, we have noticed no difference.

H. T. FRETZ: Should the sample be taken in five minutes as stated in literature by J. D. Rue?

R. I. THIEME: Chlorine reacts very rapidly when introduced into a pulp suspension. In normal operation the greater part of the chlorine added has reacted within a few minutes. The reaction then slows down and a curve on this would show approximately a flat line.

N. W. COSTER: Correct results are obtained if the chlorine has been in the pulp five, thirty, or sixty minutes.

A MEMBER: What reducing strength does the chlorinated pulp show when the chlorine has been exhausted?

R. I. THIEME: This is indicated by consuming iodine.

Discussion of Mr. Kuhn's Paper

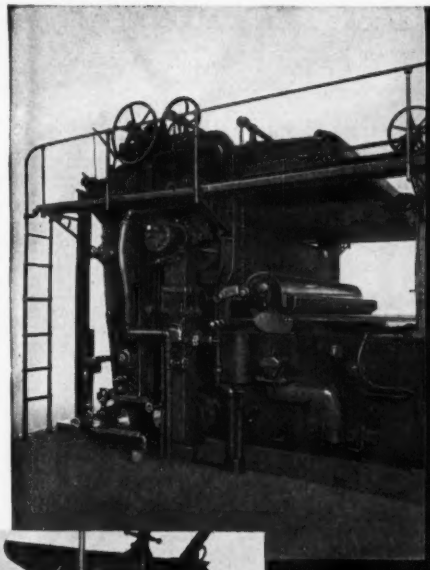
W. T. WEBSTER: This study has been of great aid to us in producing cleaner pulp.

J. E. RYBERG: Does anyone know how rotary and flat screens compare in the removal of dirt from the pulp?

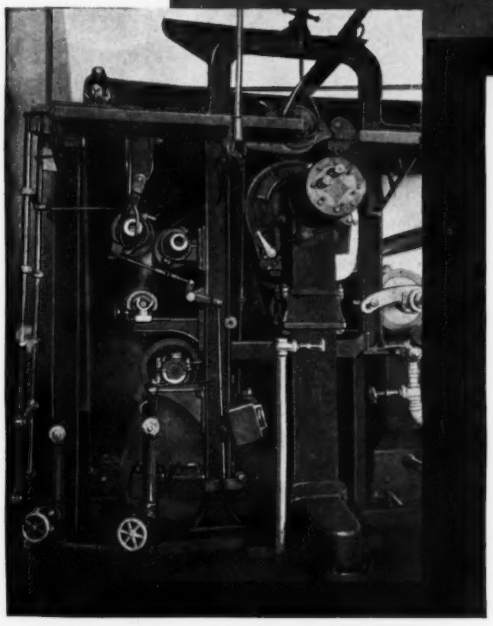
W. T. WEBSTER: Our mill was rebuilt from the original unbleached mill. We now use rotary knotters and rotary screens which are followed by the addition of flat screens when the mill was changed to produce bleached plup.

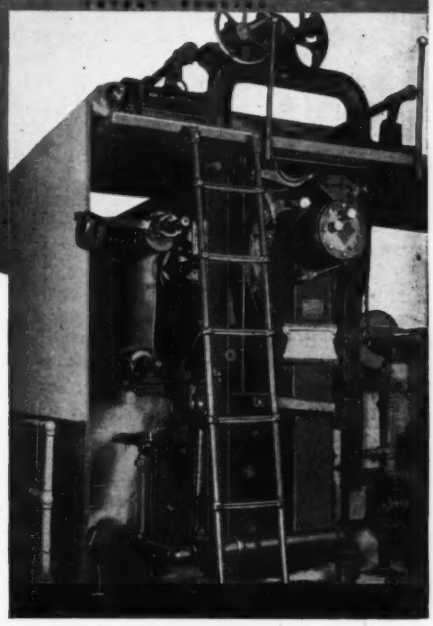
J. E. RYBERG: Why don't sulphite mills use rotary screens?

N. W. COSTER: Experience has shown that sulphite



BELOIT SUCTION *Drum Press*





Results: Equivalent to suction drum and suction primary press combined

An absolute necessity on every board machine

Superior to all other methods of water removal on wet felts. • There must be a reason for over thirty of these rolls.

Ask the mills who installed them.

THE BELOIT WAY BELOIT IRON WORKS PAPER MACH'Y BELOIT WIS. **IS THE MODERN WAY**

BELOIT IRON WORKS, Beloit, Wisconsin, U. S. A.

pulp has not been so clean when using rotary screens. It was found that they operated best with a large overflow which was re-screened on flat screens.

Among those present were: Jerry Alcorn, William Anderson, Ray C. Austin, C. Vernon Basom, T. H. Beaune, C. H. Belvin, A. F. Benson, Ray Brown, A. F. Brunson, Richard S. Buckley, Clarence D. Bunge, Everett A. Carlson, O. S. Cauvel, E. J. Cavanaugh, H. Y. Charnell, Jr., Dick H. Cook, N. W. Coster, Conrad Dyar, E. F. Drake, Harold T. Fretz, William R. Gibson, Howard C. Graham, H. M. Gustafson, D. V. Hamilton, S. H. Harrison, William S. Hodgson, C. F. Holcomb, A. T. Hutchinson, R. P. Hutchinson, W. F. Hynes, Ray Johnson, W. A. Kelly, B. L. Kerns, Frank K. Keuss, Glen King, Robt. M. Kuhn, R. A. Lawrence, A. H. Lloyd, Norman A. Lewthwaite, Ned Menzies, Kyle M. Milligan, Frank A. Morey, C. T. Mulledy, E. E. Oleson, Adolf Orup, W. M. Osborne, Fred A. Radke, W. H. Rambo, James Ruck, J. E. Ryberg, Walter A. Salmonson, Harlan Scott, H. W. Seibert, Brian Shera, E. C. Sherman, P. S. Simcoe, Lawrence K. Smith, Henry Solbakken, Philip E Sullivan, R. I. Thieme, L. C. Van Arsdale, J. V. Venables, R. V. Vognild, Rolla W Wallert, William T. Webster, S. H. White, N. T. Widmann, William Williamson.

To Celebrate Silver Anniversary

The silver anniversary of the Federal Paper Stock Company in St. Louis, Mo., is to be celebrated February 1.

The company which was started in 1914, in a small way, by David Charak, president, and Max Kleban, treasurer, has increased, until today it utilizes over 100,000 square feet of floor space in its own modern five-story plant, equipped with its own railroad siding and concrete dock. It has kept pace with modernization in plant equipment and today both paper and bags are handled efficiently by conveyor systems which feed into the plant's five large oil hydraulic baling presses.

The company has represented the Alton Box Board Company of Alton, Ill., as buying agents for their waste paper for over twelve years.

Besides its large waste paper operations, it is a substantial dealer in new rag cuttings, buying and selling in the principal producing and consuming markets of the country. The concern also handles old rags, wiping rags, cotton and woolen waste, remnant goods, and in the past few years has built up a recognized business in bale ties.

The company is headed by David Charak, who for many years was president of the Waste Paper Institute and who during the NRA served as National Chairman of the Waste Paper Code Authority. The other officers are Max Kleban, treasurer, Wolfe E. Grand, vice president, and Jean B. Charak, secretary.

Break Ground for Lufkin Mill

A press dispatch from Lufkin, Tex., under date of January 16 says that "E. L. Kurth, president, Southland Paper Mill, turned the first shovel of dirt and officially started construction of the $6,000,000 newsprint plant here.

"The first work was that of making tests of ground formation for setting foundations of buildings. Pay checks were handed the crew Saturday. Two immediate needs to be started are a concrete state highway to the site, three miles from Lufkin, and building a spur from the A. & N. R. Railway to the mill.

"L. W. Mitchell, resident engineer, arrived Sunday. He has been ill in New York."

Testing Instruments Wanted

The Hebrew University, Jerusalem, Palestine, is organizing a paper testing laboratory and would like all manufacturers and distributors of testing instruments to send catalogs and quotations to Professor Herbert Littman.

Paper Merchants Meet at Wilkes-Barre

The paper merchants of Pennsylvania, excluding Pittsburgh and Philadelphia, met at a dinner meeting at the Hotel Sterling in Wilkes-Barre on Wednesday evening, January 18. In spite of the fact that the weather was decidedly unfavorable, merchants from most of the principal cities were represented.

A large majority of the merchants in this territory are members of the National Paper Trade Association, with no regional group affiliation. The primary purpose of this meeting was to organize this group into a regional association. In the accomplishment of this, the following officers were elected:

President — Robert M. Hughes, vice - president Megargee Brothers Inc., Scranton, Pa.; Vice-President—J. A. Donaldson, president Donaldson Paper Company, Harrisburg, Pa.; Secretary — John R. Jones, president Bushkill Paper Company, Easton, Pa.

A. R. Jackson, secretary, Wrapping Paper Division of the National Paper Trade Association was present and gave valuable assistance in the organizing of this group. Mr. Jackson discussed in a most enlightening and comprehensive manner the problems, which confront the paper merchants, together with constructive plans for the solution of these problems.

Mr. Hughes gave a fine talk, outlining the situation as it exists in the territory covered by their new association, stressing the importance of regular meetings to bring about better operating conditions.

In addition there was considerable discussion of mill selling policies and plans for the elimination of unsound mill policies and unsound merchant practices. It was pointed out that this was an invaluable time to separate facts from fancies and to get back to sound economic principles.

Only a few merchants in this territory remain to be enrolled to make this association territory one hundred per cent in the N.P.T.A.

New England Paper Merchants to Meet

BOSTON, Mass., January 23, 1939—At the annual meeting of the New England Paper Merchants Association, Inc., to be held at the Parker House Wednesday evening, February 1, there will be a speaker particularly noted for his skill and knowledge in presenting economic facts with relation to future business trends and commodity prices.

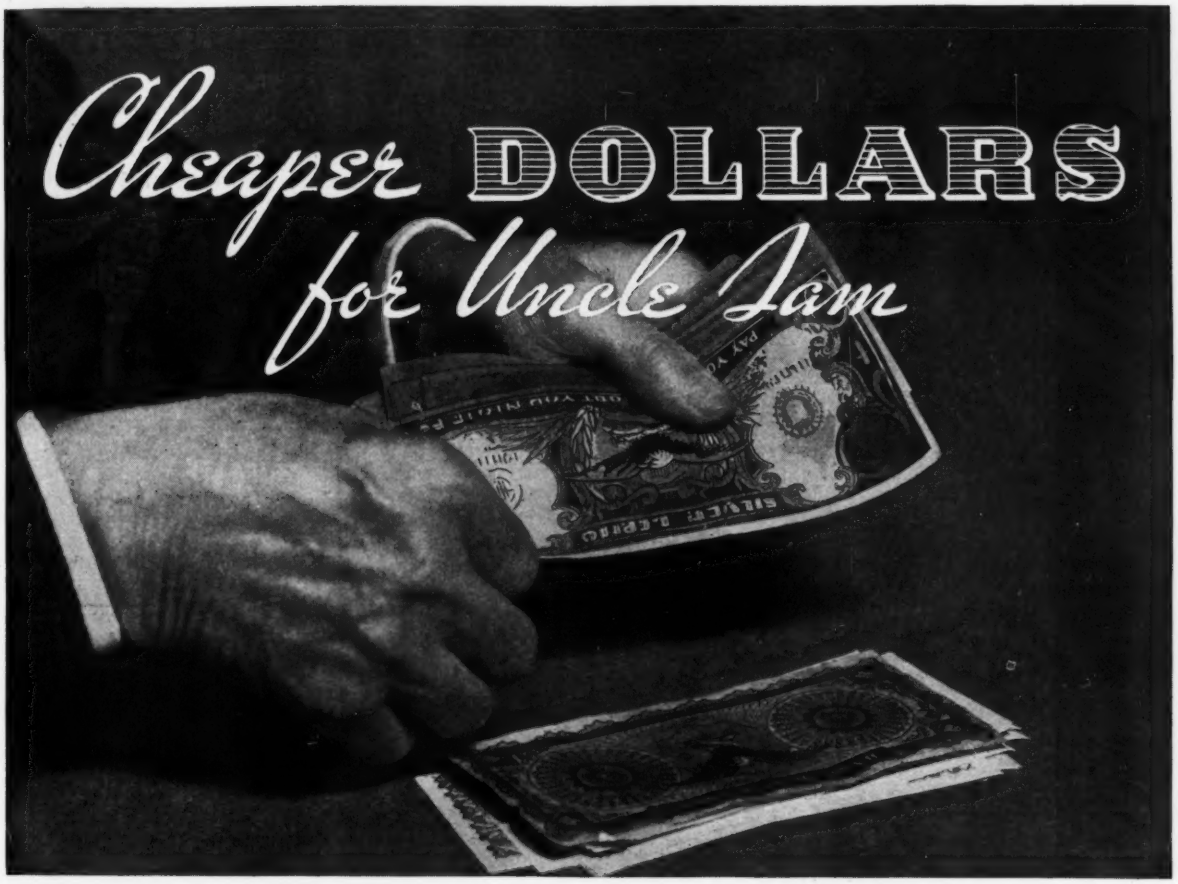
The gathering will also be called "new members' night." A. R. Jackson, secretary of the Wrapping Paper Division of the National Paper Trade Association, is expected to attend and describe the value of association membership.

J. R. Halkyard Goes With Carter, Rice

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., January 23, 1939—John R. Halkyard is to become associated with Carter, Rice & Co., Corp., about February 1 in the capacity of manager of the wrapping and industrial papers and twine department of the Boston Division, according to an announcement made by C. A. Esty, president of that company.

Mr. Halkyard has had many years of sales and executive experience with the Providence Paper Company, Providence, R. I., is widely known to the paper industry throughout the country and is now serving the New England Paper Merchants Association as its president.



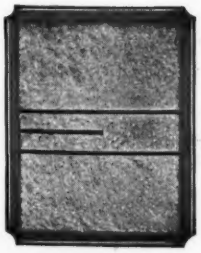
ALTHOUGH the reduction in the size of treasury notes had nothing to do with official revaluation of the currency, the economies resulting from the use of smaller bills are substantial. The paper used in printing United States currency represents just about the highest development in the history of paper technology. This, in turn, is reflected in its cost. » » But the mechanical processes of making this paper are common to the entire industry. Extraction of water from the web before it passes to the dryers is paramount. To effect this is the function of the felt at the wet end of the machine. Because Hamilton Felts remove the water faster, more completely and more uniformly they are used by the mills that supply the United States Government with bank note stock.

From the thinnest tissue to the heaviest board, there is a Hamilton Felt that will do your work better, faster and at lower cost.

•

SHULER & BENNINGHOFEN, HAMILTON, OHIO

• Miami Woolen Mills, Established 1858 •



Hamilton Felts are marked by two blue lines full width of the felt and by one shorter blue line midway between them.

Hamilton Felts

Make 12,837,003 Tons of Paper in 1937

A slight increase in employment and considerable increases in wages and value of products in the paper industry for 1937 as compared with 1935 are shown in the preliminary figures compiled from returns of the recent Biennial Census of Manufacturers just released by Director William L. Austin, Bureau of the Census, Department of Commerce.

The number of wage earners increased 7.2 per cent, from 103,344 in 1935 to 110,809 in 1937, while their wages increased 28.9 per cent, from $110,200,308 to $142,079,857. The value of products increased 34.6 per cent, from $711,793,299 to $957,939,764.

The production of paper and paperboard in 1937 amounted to 12,837,003 tons, valued at $895,439,687, f.o.b. factory prices—increases of 22.5 per cent in quantity and 36.5 per cent in value as compared with 10,479,095 tons, valued at $656,115,565 for 1935.

This industry, as classified for Census purposes, embraces establishments engaged primarily in the manufacture of paper and paper board.

Table 1 give summary statistics for 1937, 1935, and 1933 and table 2 shows the production, by kind, quantity, and value, for 1937 and 1935. All figures for 1937 are preliminary and subject to revision.

Carter, Rice Stock Mohawk Cover

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., January 23, 1939—Carter, Rice & Co., Corporation, to take care of a rather insistent demand, is putting in a stock of Mohawk Cover, made by the Mohawk Paper Company, Inc., Cohoes, N. Y. This paper may be used for town report covers. Mohawk Cover, classified as a No. 3 cover, contains approximately 25 per cent ground wood.

TABLE I.—SUMMARY FOR THE INDUSTRY: 1937, 1935, AND 1933

(Because they account for a negligible portion of the national output, plants with annual production valued at less than $5,000 have been excluded since 1919)

	1937	1935	1933	Per cent of Increase 1935-1937	Per cent of Increase 1933-1937
Number of establishments [1]	647	591	600	9.5	7.8
Wage earners (average for the year) [2]	110,809	103,344	87,224	7.2	27.0
Wages [2]	$142,079,857	$110,200,308	$81,090,682	28.9	75.2
Cost of materials, supplies, fuel, and purchased electric energy [3]	$567,449,130	$429,113,355	$311,766,966	32.2	82.0
Value of products [3]	$957,939,764	$711,793,299	$560,962,625	34.6	70.8
Value added by manufacture [4]	$390,490,634	$282,679,944	$249,195,659	38.1	56.7

[1] The 647 establishments reporting for 1937 represent mills operated. The 591 establishments reporting for 1935 operated 617 mills. The 600 establishments reporting for 1933 operated 610 mills.

[2] Not including salaried officers and employees. Data for such officers and employees will be included in a later report. The item for wage earners is an average of the numbers reported for the several months of the year. In calculating it, equal weight must be given to full time and part-time wage earners (not reported separately by the manufacturers), and for this reason it exceeds the number that would have been required to perform the work done in the industry if all wage earners had been continuously employed throughout the year. The quotient obtained by dividing the amount of wages by the average number of wage earners cannot, therefore, be accepted as representing the average wage received by full-time wage earners. In making comparisons between the figures for 1937 and those for earlier years, the possibility that the proportion of part-time employment varied from year to year should be taken into account.

[3] Profits or losses cannot be calculated from the Census figures because no data are collected for certain expense items, such as interest, rent, depreciation, taxes, insurance, and advertising.

[4] Value of products less cost of materials, supplies, fuel, and purchased electric energy.

TABLE II.—PAPER AND PAPERBOARD—PRODUCTION, BY KIND, QUALITY, AND VALUE: 1937 AND 1935

(The schedule used for 1935 did not call for data in as much detail as that used for 1937, and consequently some of the figures in this table are not strictly comparable for the two years)

Kind	1937 Quantity (short tons)	1937 Value	1935 Quantity (short tons)	1935 Value
1. Paper industry, all products, total value	.....	$957,939,764	.....	$711,793,299
Paper and paperboard:				
2. Produced for sale	9,419,125	686,427,937	7,702,807	502,269,724
3. Produced for transfer to other plants of same company	2,364,481	137,166,446	1,786,584	92,339,264
4. Products other than paper and paperboard (not normally belonging to the industry)	.....	134,345,381	.....	117,184,311
5 Paper and paperboard produced for use in same plant	1,053,397	71,845,304	989,704	61,506,577
Paper and paperboard, aggregate (sum of 2, 3, and 5)	12,837,003	$895,439,687	10,479,095	$656,115,565
Newsprint, standard, in rolls and sheets	960,663	36,498,374	947,717	33,353,967
Groundwood printing and specialty papers	492,972	30,378,097	274,154	16,142,571
Book paper, total	1,561,074	150,170,447	1,281,870	112,608,975
Cover paper	24,437	4,435,204	20,806	3,710,430
Writing paper (fine), total	578,147	87,271,592	507,325	70,619,934
Wrapping paper, total	2,053,387	179,734,517	1,632,054	127,058,538
Sulphite	678,329	69,963,724	421,111	40,223,096
Kraft	1,130,033	86,142,532	984,784	66,179,671
Other	245,025	23,628,261	226,159	20,655,771
Tissue paper, total	540,152	63,433,450	473,214	46,235,141
Absorbent paper, total	138,064	22,120,473	95,179	15,911,243
Building paper, total	608,086	32,630,126	440,704	19,449,767
Other paper	77,985	11,427,872	110,182	10,921,673
Boards, total	5,802,036	277,339,535	4,695,890	200,103,326
Container boards	3,167,550	134,403,314	2,358,093	88,459,767
Liners	2,144,568	95,626,113	1,601,189	64,177,141
Chip (plain and test)	506,013	18,457,834	410,489	11,948,682
Straw (for corrugated-container use)	441,312	16,895,781	346,415	12,333,944
Other container boards	75,657	3,423,586	(1)	(1)
Folding boxboards	1,289,024	67,198,742	1,120,546	51,696,424
Set-up boxboards (nonbending)	720,310	29,753,939	623,890	22,912,560
Binder's board	51,913	3,620,887	61,603	4,351,752
Cardboard	51,318	4,167,531	30,796	1,934,356
Bristol board	73,539	8,444,593	72,257	6,834,189
Leatherboard	27,174	2,238,888	26,759	2,156,678
Pressboard	3,623	1,521,648	7,216	947,224
Other boards [2]	412,585	25,989,993	394,730	20,810,376

[1] Included with data for "Other boards."

[2] Figures include data for "wallboard," "insulating board," and "other building boards" as follows: For 1937, 110,005 tons, valued at $5,823,409; for 1935, 79,814 tons, valued at $3,800,436.

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Obituary

Justus C. Sanburn

Justus C. Sanburn, technical director and secretary of the Strathmore Paper Company, died in his home at 33 Oxford Road, Longmeadow, Mass., on January 15, after a brief illness.

He was born in Thomson, Ill., on June 4, 1890, the son of Willis H. and Maud (Rising) Sanburn. Graduated from the Massachusetts Institute of Technology in 1912, he immediately entered the Strathmore organization, and rose gradually to his executive office.

Mr. Sanburn made a number of valuable contributions to the paper industry. He devised one of the first accurate methods of fiber counting and cooperated with the Bureau of Standards in establishing weight factors for use in fiber analysis standards.

His thesis was written on water analysis; he early recognized the importance of water variables in the manufacture of paper. He originated and put into use color standards made from an extract of oak leaves. He recognized the importance of the pH test, and used a comparator with indicator standards in sealed glass tubes some time before such commercial instruments were on the market.

He saw the potential values of titanium oxide when that compound was a laboratory curiosity, at $16 a pound. In 1931, when its price had dropped to 20c, he was ready to use it, with the result that Strathmore was the first mill to employ that material as an opacifying agent.

With the increasing demand for opaque printing papers came the need for a simple, quick method of measuring opacity. For an opacimeter he adapted the Weston sight meter, finding by tests that there existed a nearly straight-line ratio between foot-candle readings and the per cent of opacity by contrast ratio of white papers.

He leaves his widow, Mrs. Marion (Hale) Sanburn; a son, Willis H., a sophomore at Yale University; a daughter, Eleanor H., a student at the Emma Willard School; and his mother, Mrs. Willis H. Sanburn, of Springfield.

William H. Burns

APPLETON, Wis., January 23, 1939—William H. Burns, Sr., 65, secretary and sales manager of the Valley Iron Works Company, died January 11 at his home here following an illness of two months. He started work for the company as bookkeeper in 1901, and was elected secretary of the company in 1906. He was appointed plant superintendent in 1910 and continued in that capacity until 1920, when he became appointed sales manager. "Cap" Burns, as he was known, dealt with paper mills throughout the United States and Canada, and was well known to many manufacturers. He was prominent in Masonic circles, and a member of the First Methodist Church. He was born at Oakfield, Wis., and came to this city forty years ago. Survivors include the widow, three daughters and two sons.

John Bradford Allin

NEW ORLEANS, La., January 23, 1939—John Bradford Allin, district manager of the Southern Advance Bag and Paper Company, and a resident of New Orleans for the past eight years, died at his home, 4026 Vendome Place, last week, after a short illness.

Manager of the New Orleans district for the company, which has its mill and headquarters in Hodge, La., Mr. Allin had been connected with the company for more than ten years. He moved to New Orleans in 1930 from Henderson, Ky. He is survived by two sons, John B. Allin, Jr., of Bristol, Va.; and William M. Allin, of New Orleans, La.; and a sister, Mrs. George H. Cox of Los Angeles, Calif.

Ray A. North

GREEN BAY, Wis., January 23, 1939—Ray A. North, 66, president of the Green Bay Foundry and Machine Works, died January 19 after a month's illness.

The company was founded to manufacture paper mill machinery and foundry equipment. A number of its products were invented by Mr. North, and he also devised numerous improvements on other machines. He held a number of valuable patents. Prior to coming to Green Bay, he was associated with R. J. Dowd Company, Beloit, Wis.

Mr. North was prominent in the Masonic lodge and Rotary club at Green Bay. He is survived by his widow and one son, James P. North, vice president of the company. He had been a resident of Green Bay for the last twenty-five years and was a veteran of the Spanish-American War.

Brotherhood Has Banquet at Glens Falls

GLENS FALLS, N. Y., January 23, 1939—The annual banquet and installation of officers for the local branch of the International Brotherhood of Papermakers was held here this week with many prominent mill officials in attendance. Harry F. Bullard, assistant to the president of Finch, Pruyn & Co., praised the paper makers for their efforts and declared that a lot of progress was made during past year. He stated also that the company had advanced by the reductions in accidents to its personnel. George K. Walker, superintendent, told the gathering that they had turned out the best quality paper in the last year that he had seen in his forty years of experience. We must continue to make better paper, he said, and we must produce a product not equal to our competitors but better. Samuel Pruyn, sales manager, declared that the product of the concern is so good it ought to sell itself. Another prominent official declared that if each business and industry conducted itself with the harmony and cooperation exemplified by the employers and employees of Finch, Pruyn & Co., the outcry of Naziism and Communism against capital and labor would never exist. Among those attending the banquet was Byron J. Lapham, a former vice president of the company. Officers installed for the year include George Gilbert, president; Hartwell C. Rhodes, vice president; Louis Farkas, corresponding secretary; Clifford Hovey, secretary; Samuel Cochrane, Fred Holleran and John Carey, trustees.

A. P. W. May Build At Jacksonville

A press dispatch from Jacksonville, Fla., under date of January 22, says that preliminary plans are in progress for the construction of a paper manufacturing plant there to cost more than $1,000,000 by the A. P. W. Company, of Albany, N. Y.

HEADS WISCONSIN GROUP

(Continued from page 15)

was furnished by a band from Lakeview mill of Kimberly-Clark.

The speaker was James E. Gheen of New York City, who uttered a multitude of jokes and puns while driving home safety advice and logic. He pointed to the value of organizing for safety, and the necessity of thinking safety as well as acting it.

Reforestation For Future Pulpwood Supply

The extent to which reforestation is being carried on in Wisconsin, largely for the benefit of future pulp wood supply, is shown in a report of the Wisconsin Conservation Commission, Madison, Wis. Nurseries operated by the state supplied 25,305,986 trees for planting on public and private forest lands during 1938, mostly pines and spruces.

A total of 2,344,655 trees were planted in state forests; 11,201,782 in county forests; 3,215,395 through the extension service; 805,647 in private forests operated mostly by paper mills; 11,425 for highway plantings, and the remainder to miscellaneous sources. More than 10,000 acres of state and county-owned land were planted. The program was accomplished largely through CCC camps and WPA workers.

Stout Society Visits Consolidated Mill

Eighteen members of the Stout Typographical Society of Stout Institute, Menomonie, Wis., and their faculty sponsors made a tour last week of the Consolidated Water Power and Paper Company's mill at Wisconsin Rapids, Wis. The trip was undertaken in observance of Printing Education Week. Visits also were to be made to paper mills and publishing plants in the Fox River Valley. Among these are the Gilbert Paper Company, and the Banta Publishing Company of Menasha, Wis.

Paper Men Elected Trustees of Boy Scouts

Several paper manufacturers have been elected to the board of trustees of Valley Council, Boy Scouts of America, to handle trust funds of the organization serving the Fox River Valley. C. A. Babcock, president of the Wisconsin Paper and Pulp Company, Neenah, Wis., was elected chairman. Others on the board include F. J. Sensenbrenner, president of Kimberly-Clark Corporation, Neenah; George Banta, Jr., Banta Publishing Company; Mowry Smith, Menasha Wooden Ware Corporation, Menasha, Wis., and Karl E. Stansbury, president of Thilmany Pulp and Paper Company, Kaukauna, Wis.

John Alexander Reelected to Bank Office

John E. Alexander, president of the Nekoosa-Edwards Paper Company, was reelected vice president of the Nekoosa State Bank, Nekoosa, Wis., at the annual meeting last week.

Falk Corp. Promotions

The Falk Corporation, Milwaukee, Wis., announces two promotions in its engineering department: Louis W. Falk becomes executive engineer, and W. P. Schmitter becomes chief engineer. Harold S. Falk, vice-president, continues in his present capacity as director of engineering.

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CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Financing and Operation of Pulp and Paper Mills

General Construction News

Philadelphia, Pa.—The Royal Pioneer Box Manufacturing Company, 1147 North Fourth street, manufacturer of fiber boxes and containers, folding paper boxes, etc., has leased a building at 1101-19 North Front street, in vicinity of present plant, and will occupy for expansion, including increased production, storage and distributing facilities. Company will take over property at once.

Detroit, Mich.—The Detroit Sulphite Pulp and Paper Company, 9125 West Jefferson street, manufacturer of bristol, bond, tissue and other paper stocks, has awarded general contract to the Jacob Hoffman Construction Company, 8866 Aurora street, Detroit, for new addition to mill, recently referred to in these columns, to be one-story, 100 x 100 feet, reported to cost over $80,000, including equipment. Work on superstructure is scheduled to be placed under way at early date. New unit will provide for considerable increase in present mill capacity.

Somerville, Mass.—The Consolidated Box Company, 6 Vernon street, manufacturer of paper boxes and containers, has leased two floors in local Building No. 2 of the Heywood-Wakefield Company, manufacturer of furniture at Central and Vernon streets, and will occupy for expansion in plant, including general production, storage and distribution. Company will take over property at once.

Dayton, Ohio—Reynolds & Reynolds Company, Washington and Dudley streets, Dayton, manufacturer of paper specialties, has awarded contract to Forrest Longstreth Company, Dayton, for structural work in connection with remodeling and improving a two-story building, formerly used as a power house, for plant service, converting the structure for storage and distribution. Another award has been made to the Wehner Roofing and Sheet Metal Company, for roofing and miscellaneous metal work, with electrical installation to be handled by James A. Atwood, Dayton. Merrell & Kauffman, 629 Cambridge avenue, Dayton, are general contractors for work, which is scheduled to be placed under way at once. No estimate of cost has been announced. Walter A. Rabold, 341 Elmhurst road, Dayton, is architect.

Pawtucket, R. I.—The Industrial Paper and Cordage Company, 48 Broadway, general paper products, has arranged for the purchase of one of the local mill buildings of the Royal Weaving Company, Central avenue, known as Building No. 4, and will use for plant, with extensive storage and distributing facilities. The property consists of a two-story building, totaling about 114,000 square feet of floor space, and will provide for considerable increase in operating facilities. A portion of the structure will be occupied by the Shaw Paper Box Company, manufacturer of paper boxes and containers, now located in the building at 48 Broadway, noted, in conjunction with the Industrial Paper Company.

Menominee, Mich.—The Hoskin Paper Company, manufacturer of kraft paper stocks, is completing construction of new filter plant at mill, previously referred to in these columns, and will soon have unit ready for service. An award for a water pump and auxiliary equipment has been made to the Allis-Chalmers Manufacturing Company, Milwaukee, Wis. General contractor for the construction is John Salen & Son, Menominee. Filter equipmnt has been furnished by the Norwood Engineering Company, Florence, Mass. L. A. DeGuere, Wisconsin Rapids, Wis., is consulting engineer.

New York, N. Y.—The Gramercy Paper Box Corporation, recently organized with capital of $20,000, plans operation of local plant for the manufacture of a line of paper boxes and containers. New company is represented by Smith & Smith, 277 Broadway, New York, attorneys.

Crossett, Ark.—The Crossett Paper Mills, manufacturers of kraft paper stocks, has active work in progress on expansion and improvements in mills, including the erection of four additional buildings, previously referred to in these columns, comprising three one-story structures and a two-story unit, 64 x 128 feet. The latter building will be used for extensions in finishing department, as well as storage and distributing facilities; two of the smaller buildings noted will be equipped for bleaching service and for oil products recovery through process of extraction, respectively. The other one-story structure is an addition to power house, to include installation of a new boiler, turbo-generator and auxiliary equipment for considerable increase in power facilities at the mill. Erection of buildings is being carried out under direction of the Rust Engineering Company, Clark Building, Pittsburgh, Pa., under a general contract. It is understood that program is scheduled for completion in the spring. Cost is estimated close to $750,000, including equipment.

Milwaukee, Wis.—The Chase Bag Company, 302 East Pittsburgh avenue, manufacturer of paper bags and other containers, has awarded general contract to the Dahlman Construction Company, Milwaukee, for structural improvements in factory at location noted. A building permit has been issued and the work will be placed under way at once. No estimate of cost has been announced.

St. Louis, Mo.—The Gaylord Container Corporation, 2820 South 11th street, manufacturer of corrugated boxes and containers, folding paper cartons, etc., has arranged with Anheuser-Busch, Inc., 721 Pestalozzi street, brewer, for long-term lease of group of five buildings in vicinity of Second and Dorcas streets, totaling about 100,000 square feet of floor space, with main one-story structure, 275 x 300 feet. Company will occupy for new plant for its folding carton division, now located at 912 North Market street, formerly the Doane Carton Company, acquired a number of years ago. Large increased capacity will be provided at new location. Structures will be modernized and improved, and contract for this work has been let to the L. O. Stocker Company, Arcade Building, St. Louis. Work will be placed under way at once, with new plant scheduled to be ready for operation late in the spring.

Jacksonville, Fla.—The A. P. W. Paper Company, Albany, N. Y., manufacturer of tissue paper stocks, is said to be concluding arrangements for acquisition of a tract of land at Jacksonville, for proposed new mill in the South, for which sites have been under investigation for several weeks. New plant will comprise several one and multi-story units, reported to cost in excess of $1,000,000, including equipment. It is proposed to have detailed plans prepared at early date.

New York, N. Y. — The Gates Container Corporation, recently organized with capital of $20,000, plans operation of local plant for production of corrugated boxes and containers. New company is represented by Maxwell Goldstein, 270 Broadway, New York, attorney.

North Billerica, Mass.—The Johns-Manville Corporation, 22 East 40th street, New York, N. Y., manufacturer of wall board and other building products, has chartered a subsidiary company under Delaware laws, to be known as the Johns-Manville Products Corporation of Massachusetts, to operate proposed new mill at North Billerica, recently referred to in these columns. Company has active work under way on establishment of plant in former car shops of Boston & Maine Railroad, secured under lease, and proposes to begin operations at early date for the production of a line of fireproof insulating board specialties. New plans will approximate about 100,000 square feet of floor space and is being arranged to develop large capacity.

Chicago, Ill.—Weinman Brothers, Merchandise Mart, manufacturers of transparent boxes for gift purposes, etc., have leased space in building at 325 North Wells street, totaling about 7000 square feet of floor space, and will occupy at early date for manufacturing plant.

New York, N. Y.—Paper Distributors, Inc., 37 West Third street, paper products, has leased the six-story and basement building at 180 Franklin street, and will occupy for new storage and distributing plant. Present establishment will be removed to new location and large increased facilities provided. Alterations and improvements will be made in building prior to company occupancy, and this work will be placed under way at once.

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COMING EVENTS IN PAPER INDUSTRY

AMERICAN PAPER AND PULP ASSOCIATION, Sixty-second Annual Convention and meeting, Waldorf-Astoria Hotel, New York. February 20-24.

TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY, Convention, Roosevelt Hotel, February 20-23.

SALESMEN'S ASSOCIATION OF THE PAPER INDUSTRY, Annual Meeting and Luncheon, Waldorf-Astoria Hotel, New York, Tuesday, February 21.

NATIONAL PAPER TRADE ASSOCIATION OF THE UNITED STATES, Convention, Waldorf-Astoria Hotel. New York. February 20-22.

NEW ENGLAND SECTION. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

DELAWARE VALLEY SECTION. Technical Association of the Pulp and Paper Industry—Second Friday of each month at the Engineers Club, Philadelphia, Pa.

LAKE STATES SECTION. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

KALAMAZOO VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

A NEW TAX PROPOSAL

In view of the difficulty business is now having in its attempt to function at higher than current efficiency and productiveness under the high tax burden and regulatory measures imposed upon it by numerous New Deal legislation, the time would seem inopportune to introduce yet another basic change in our national economy. The proposal embodied in President Roosevelt's message to Congress to "tax income from whatever source derived", is a disturbing suggestion at this time when confidence is generally conceded to be at a low level.

The President's proposal is not a new idea but the method suggested for its accomplishment is sure to create widespread criticism. Instead of a constitutional amendment Mr. Roosevelt would have the change effected by a decision of the Supreme Court. As to the desirability of abolishing tax-exemption, which refers to the taxation of compensation for services rendered to Federal, State and municipal governments and to interest on obligations issued by these governments, there would seem wide agreement. About eighteen years ago Andrew Mellon, as Secretary of the Treasury, reported to Congress that "the existence of a mass of tax-exempt securities constitutes an economic evil of the first magnitude". Mr. Mellon pointed out that the issuance of such tax-free securities encouraged the growth of public indebtedness, diverted capital from productive enterprise and enabled a large class of investments to escape their just share of taxation.

The fear of the expanding power of the Federal Government and the usurpation of rights which have remained with the States since the Constitution was written, is one of the reasons why so large a part of the employing class lacks confidence in many of the basic changes inaugurated by the Administration. In this particular instance Mr. Roosevelt is opposed by the Conference on State Defense whose membership includes Attorney Generals from forty-two States. Spokesmen for the State Governments insist that the Sixteenth Amendment was adopted on the basis of general understanding that it would not permit Congress to tax State securities. They insist that the proposal would result in great economic disadvantages for the States and would be an usurpation of authority.

In commenting on the proposed change, Godfrey N. Nelson, lawyer and tax authority of The New York Times Company, states in part: "Favorable to the President's hopefulness is the fact that basic changes in income-tax laws have been wrought heretofore without constitutional amendment. For many years it was ruled by the Treasury that stock dividends generally could not be taxed. Its authority was a Supreme Court decision (Eisner v. Macomber). Even Congress believed that there was no way in which stock dividends could be taxed under that decision. A decade later it was discovered that the court's ruling had been misinterpreted and statutory law was amended to provide that such a distribution 'shall not be treated as a dividend to the extent that it does not constitute income to the shareholder within the meaning of the Sixteenth Amendment of the Constitution'. Such stock dividends as were income under the constitutional amendment thus became taxable by statute."

"In reference to the many court decisions in the last two years in which the taxation by the Federal Government of compensation from instrumentalities of the State has been upheld," Mr. Nelson said in part: "The President made special mention of the case of the Port of New York Authority; he considered this case as an important and constructive contribution to the elimination of tax immunities (Guy T. Helvering, Commissioner, v. Philip L. Gerhardt, 304 U.S. 405, decided by the Supreme Court (5 to 2) on (May 23, 1938). The circumstances under which the question of immunity arose in this proceeding, how-

ever, seem not to make the findings generally applicable to the question of immunity in its broader aspects . . . The court stated that they refrained from expressing an opinion as to whether a Federal tax may be imposed upon the Port Authority itself with respect to its receipts of income, and concluded: 'We decide only that the present tax neither precludes nor threatens unreasonably to obstruct any function essential to the continued existence of the State government:' "

In citing a recent court opinion Mr. Nelson said in part: "Only ten days ago the Circuit Court of Appeals for the Seventh Circuit, after a careful study of the Port of New York Authority decision, held in a major opinion that compensation received in fees from litigants, and not from the State, by a Master of Chancery, was immune from income tax (Commissioner of Internal Revenue v. Charles C. Stilwell, decided January 12, 1939). Here, however the government had conceded that the tax payer was a statutory officer of the State, engaged in essential governmental functions."

"The President's proposal is to tax by the enactment of a revenue law all Federal and State salaries as well as all interest received on Federal and State securities, heretofore exempted, from the date of enactment. To uphold such a revenue law, without a constitutional amendment, would require that the Supreme Court reverse itself upon a principle now firmly embedded in our income-tax system."

Elmer C. Lee Leaves Power River Co.

[FROM OUR REGULAR CORRESPONDENT]

VANCOUVER, B. C., January 23, 1939—Elmer C. Lee, assistant to the president of the Powell River Co. Ltd., has been made president and general manager of the Virginia Dock and Trading Company of Seattle, it was announced recently by W. Barclay, manager of the Powell River Company, Vancouver, B. C.

Mr. Lee, who has been connected with the Brooks-Scanlon interests, of which both his old and new company form part, for many years, will take over his new post on January 9. He will make his headquarters in Seattle. At present he is in California.

Before assuming the post of assistant to the president, Mr. Lee was for some years secretary to the Powell River Company. The post he vacates will not be filled.

New Paper Mill Starts in Columbia

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., January 25, 1939—The new paper mill located at Barranquilla, Colombia, is now in operation. The new plant will have an annual capacity of 15 metric tons per 24-hour day but initial production is understood to be considerably under that figure. The mill is equipped to turn out both paper and board but wrapping paper only will be manufactured at present. The company will utilize imported pulp, present supplies having come from Norway.

Production Ratio Report

These statistics are based upon paper production reports to the American Paper and Pulp Association.

COMPARATIVE MONTHLY SUMMARIES

Months	1938(c)	1937(c)	1936	1935	1934
January	63.9%	90.3%	76.1%	65.8%	.....
February	68.7%	90.1%	77.9%	70.0%	.....
March	69.6%	90.3%	76.0%	70.5%	.....
April	68.3%	92.1%	82.3%	70.0%	.....
May	69.0%	90.6%	81.6%	69.4%	.....
June	66.0%	87.3%	80.7%	72.3%	.....
July	72.0%	81.8%	77.3%	64.9%	.....
August	77.2%	82.9%	81.5%	70.9%	.....
September	76.3%	78.6%	80.5%	71.9%	58.2%
October	82.5%	73.5%	87.6%	75.6%	64.7%
November	79.6%	61.9%	88.0%	75.3%	61.7%
December	74.9%	54.5%	85.9%	71.2%	59.6%
Year Average	72.4%	80.6%	81.3%	70.5%	.....

COMPARATIVE WEEKLY SUMMARIES

CURRENT WEEKS, 1938		CORRESPONDING WEEKS, 1937	
*December 10	77.5%		
*December 17	80.8%	December 11	56.1%
*December 24	76.7%	December 18	60.0%
*December 31	63.9%	December 25	48.6%
*January 7, 1939	70.0%	January 1, 1938	47.0%
*January 14, 1939	79.3%	January 8, 1938	59.2%
		January 15, 1938	62.3%

The following statistics show the number of mills reporting by ratio groups:

	Number of Mills Reporting, Current Weeks					
Ratio Limits	Dec. 10, 1938	Dec. 17, 1938	Dec. 24, 1938	Dec. 31, 1938	Jan. 7, 1939	Jan. 14, 1939
0% to 50%	64	64	64	112	81	46
51% to 100%	243	244	240	187	199	154
Total Mills Reporting	307	308	304	299	280	200

* Subject to revision until all reports are received.
(c) Basic capacity data have been adjusted to correspond with ratings reported by individual companies.

PAPERBOARD OPERATING RATIOS

According to reports from the National Paperboard Association, per cents of operation, based on "Inch-Hours", were as follows:

Mos.	1938 (e)	1937 (e)	1936	1935	Mos.	1938 (e)	1937 (e)	1936	1935
Jan.	55%	80%	61%	61%	July	57%	67%	69%	59%
Feb.	61%	86%	67%	67%	Aug.	66%	74%	75%	65%
Mar.	60%	87%	68%	67%	Sept.	66%	70%	76%	69%
Apr.	57%	89%	70%	61%	Oct.	70%	66%	82%	76%
May	58%	86%	68%	61%	Nov.	64%	56%	79%	70%
June	56%	75%	68%	65%	Dec.	....	46%	74%	60%

Week end. Dec. 10, 1938—64%
Week end. Dec. 17, 1938—65%
Week end. Dec. 24, 1938—69%
Week end. Dec. 31, 1938—35%
Week end. Jan. 7, 1939—45%
Week end. Jan. 14, 1939—62%

(e) Basic figures revised to include new members of the National Paperboard Assn.

Wants Curb on Christmas Tree Cutting

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., January 16, 1939—Hon. P. M. Dewan, Minister of Agriculture for Ontario, in a recent interview stated that legislative action should be taken by the province to curb the pilfering of Christmas trees. He charged that the most reckless devastation of trees was the slaughter for Yuletide use and suggested that the time was fast approaching when such trees would have to be provided from managed woodlot plantations. Mr. Dewan added that it should be made prohibitive to take these trees from Crown lands or private property. It is estimated that five million trees were cut annually for decorative purposes providing an off-season income to farmers of something like $500,000. Customs figures showed that Christmas trees to the value of $509,000 were exported last year. Widespread pilfering of them, Mr. Dewan asserted, had deterred many from starting plantations and he cited control legislation which had been adopted by several states in the United States.

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ZINC SULPHIDE PIGMENTS IN PAPER

Section of the
Technical Association of the Pulp and Paper Industry

Edited by Ronald G. Macdonald, Secretary

Silver-Tarnishing Test of Paper*

(TAPPI Tentative Standard T 444m-39)

This method is designed to determine the presence or absence of materials which will tarnish or stain silver in paper used for wrapping silverware. It is chiefly intended for testing tissue papers which, in use, are in direct contact with silverware. Certain types of paper, such as parchmentized, water-repellent types, and metal-coated papers, may require modification of the test procedure. (See Note 3 under Procedure). The test results indicate the type of tarnish or stain, and the relative distribution of the materials causing such tarnishing or staining.

Apparatus

The special apparatus consists of:

(1) Flat plates 6 x 6 inches, cut from commercial rolled sheet brass 0.25 inches thick. One 6 x 6 inches flat surface on each plate should be buffed smooth and as free as possible from tool marks and then plated with pure silver to a thickness of about 0.005 inch, buffed again, and plated with another 0.005 inch of silver. In this way a smooth, continuous layer of pure silver about 0.010 inch thick will be obtained which can be cleaned and polished repeatedly. It is advisable to check the amount of silver by weighing the brass plates before and after plating. A layer of silver 0.010 in. thick should weigh 0.056 oz. Troy (1.73 grams) per sq. in.

Note: If the brass plates are plated with pure silver on both sides, one side of each plate will serve as a "blank" during the test and will indicate whether the air in the oven will tarnish silver or not. The use of plates coated on both sides with silver will obviate the use of the extra strips of silver foil called for in Note 1 under Procedure.

Two plates as described above are needed for each test and are probably sufficient for occasional tests of paper. A number of sets are necessary where frequent routine testing is desired.

(2) A good grade of silver polishing powder or paste which will not scratch pure silver and contains no cyanides. A paste made up of the finest grade of Tripoli powder, such as used for polishing metals for metallographic work, and distilled water containing a small amount of NH_4OH will clean silver completely.

(3) A temperature-controlled air oven or cabinet, protected from access to laboratory fumes.

Test Specimen

Sufficient test specimens, each 6.5 inches square, shall be cut from the paper being evaluated so as to be representative of it. Five specimens are recommended wherever possible.

Note: The sample for test and the cut specimens should be protected at all times from contamination. They should not be handled with bare hands. Use metal forceps.

Procedure

Thoroughly clean the silver surface of each plate and polish it to a high luster, free from grease, then rinse the plate with alcohol followed by ether and dry. Holding one of the 6.5 inches square test pieces by means of paper clips or forceps, wet it with distilled water as evenly and as uniformly as possible, so that the paper is saturated but not dripping wet. This can be readily done by means of an all-glass atomizer operated by compressed air (not a rubber bulb) or by steaming over the outlet of a wash bottle containing boiling distilled water. As soon as the test piece of paper is saturated with water, place it on the polished silver surface of one brass plate, taking care to have as few wrinkles or air bubbles as possible. Then lay the other brass plate, silver surface down, upon the paper. Place the test assembly in the air oven or cabinet and adjust the temperature so that the paper will dry completely in not less than 3 hours (150 to 170 deg. F. is usually sufficient. See Note 1). When the paper is dry, examine the silvered surface of each plate for evidences of tarnishing or staining. Note the color, and character of any stains found. If isolated spotting occurs, estimate the approximate size of the spots and count their number on each plate.

Notes: (1) Wherever doubt exists regarding the presence of sulphur compounds in the air in the oven, it is advisable to hang one or more small strips of clean, highly polished, pure silver foil in the oven while the test specimens are there. If tarnishing or staining of these strips occurs, the air entering the oven should be purified, or the oven should be set up where the air causes no tarnishing of the silver.

(2) Cardboard and papers other than tissue require a rather long time to dry throughout, in this test. Cardboard of ⅛ to ¼ inch thick may require 48 hours or more to dry throughout. Therefore these types should not be too wet when placed between the test plates. If cardboard is dried too rapidly it frequently buckles sufficiently to lift the test plates out of contact with most of the test specimen. Therefore, when testing cardboard it may be necessary to clamp the test plates together with "C" clamps after inserting the wetted test specimen between them.

(3) Parchmentized, glassine and other water-repellent papers, and metal-coated papers will require certain modifications of the test procedure. In most cases they may be tested without wetting the test specimen and prolonging the time in contact with the silver to at least 24 hours. When such types of paper are tested, the report should state any modification in the procedure which is used.

Report

The report shall state:

1. The number of specimens tested.
2. The color and character of tarnishing or staining, if any (whether spots, large areas, etc.).
3. The number of tarnished or stained areas as

* Anyone having any suggestions or criticisms regarding this method should write to R. G. Macdonald, 122 East 42nd Street, New York, N. Y.

maximum and minimum number found in any one test piece and the total number found in all pieces tested.

Additional Information

The principles of this test method are also applicable where wrapping paper is to be tested for its staining or corrosion properties with respect to other metals, as steel, copper, nickel, etc. In such cases it is merely necessary to use plates or forms of the particular metal or alloy in question, and to make such modifications as may be necessary for the particular purpose. For example, in the case of a metal that would rust, such as steel, the paper obviously could not be wetted; it would be necessary instead to heat in an atmosphere of high humidity.

References

See also T406m-36, Reducible Sulphur in Paper.

Water Resistance of Paper and Paper Boards*

(Ground-Glass Method)

In this method the paper is placed in contact with a ground glass surface, the interstices of which trap transuded moisture and reveal it as a fugitive dark patch when the specimen is lifted. It is more particularly useful where it is only desired to know whether moisture permeates within a given time limit. While the method is not considered suitable for a standard reference method, its simplicity has brought about its use in mill-control testing and in purchase specifications for papers, especially those which are highly water resistant, such as asphalted papers.

Test Specimen

The test specimens shall be cut from different portions of the sample in such a way as to be thoroughly representative of it. They shall be free from folds, wrinkles or other blemishes not commonly inherent in the paper. It is not usually necessary that tests be made from both the wire and the felt side as there is no appreciable difference for papers having a high degree of water resistance.

Procedure

The tests shall be made on material conditioned according to the official method for conditioning and in the atmospheric conditions therein specified. The temperature of the water shall be maintained at 20.5 to 21.5 deg. C. Five specimens shall be tested.

For testing paper, fold specimens 6 x 6 inches to form boxes 2 x 2 x 2 inches, and fasten with paper clips the tabs formed by folding. For testing paper board, affix the specimens to the bottom of glass cylinders, about 2 inches in diameter as follows: Heat in a shallow flat bottomed vessel until it begins to smoke sufficient beeswax to be about ⅛ inch deep. Place one end of the cylinder in the melted wax and let it remain until the wax begins to mount up the side of the cylinder. Remove the cylinder, let it drain for an instant, then apply the waxed end to the specimen, which has been laid on a smooth surface such as that of glass. Place a weight on the cylinder, and let it remain until the wax has hardened.

Place the boxes, or the cylinders with specimens attached, on a ground surface of a piece of glass resting on black paper or other suitable black surface. Fill the boxes or cylinders with water to a depth of about 1 inch and note the time. Lift the boxes or cylinders at half-hour intervals and observe for transuded moisture, which is visible as a dark film on the surface of the glass. As the film is fugitive and sometimes faint, it should be viewed quickly and at an angle.

Report

The report shall give the average value of time of transudations in hours to the nearest ½ hour.

References

Paper Trade J. 79, No. 10: 48-50; TS 93-95 (Sept. 4, 1924).
See also T433m-39, Water Resistance of Paper (Dry-Indicator Method); T431m-35, Ink Absorption of Blotting Paper; and T441m-37. Water Absorptiveness of Non-Bibulous Papers and Paper Boards.

* This method is suggested by the Paper Testing Committee as being the most suitable to date for the purpose. It is not however a TAPPI standard. Criticisms are earnestly requested. (T443sm-39)

To Discuss Viscose Rayons

The American Section of the Society of Chemical Industry will hold a meeting on February 10, 1939, at 8:00 P. M. at The Chemists' Club, 52 East 41st street, New York City. This is to be held jointly with the American Chemical Society. Dr. Wallace P. Cohoe, chairman of the American Section, will preside over the meeting, at which Dr. Wanda K. Farr, director of the Cellulose Laboratory of the Chemical Foundation at Boyce Thompson Institute, will speak on "Viscose Rayons". Dr. Farr's talk will cover microscopic, X-ray diffraction and chemical studies of developing wood fibers, the effect of purification treatments of wood pulp and the behavior of the purified product in various stages of viscose manufacture. It will disclose the cause of many hitherto unexplained characteristics of cellulose "solutions" and of products derived therefrom. A dinner will be held at the club, preceding the meeting and starting at 6:45 P. M.

American Writing Paper Co. Changes

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., January 23, 1939—William J. Lamery of 60 Lincoln street, has been promoted to the position of assistant to the general manager of production to succeed Leonard Taylor who left the American Writing Paper Corporation early this month to become superintendent of the Byron-Weston Paper company of Dalton. Mr. Lamery's position as superintendent of the Crocker division will be taken by Howard Ferguson of 453 Pleasant street.

Determining Water Vapor Permeability of Sheet Materials*

Progress Report

By G. J. Brabander [1]

Abstract

Water vapor permeability tests have been made on seven different sheet materials by eleven cooperating laboratories using the suggested standard procedure for this test. The results have been assembled, tabulated and analyzed. The analyses indicate that:

1. The temperature and humidity conditions prevailing within the testing chamber must be controlled within very narrow limits in order to obtain reasonable check results.

2. The amount of desiccant within the test cell must be considerably greater than that proposed when very permeable sheet materials are being tested in order to avoid saturation of the desiccant. Bringing fresh desiccant in contact with the low humidity face of the sheet at intervals during the test will also eliminate the factor of saturation.

3. Large percentage, but low absolute deviations may be expected in water vapor permeability values on low permeability materials due to ordinary variations in the material itself. Highly permeable materials may be expected to show a percentage deviation of 10 per cent between different laboratories.

Many of the objections to previous methods for testing water vapor permeability have been eliminated by the proposed method; especially those concerned with the method of sealing, edge leakage, test area, condensation, total pressure and vapor pressure difference across the sheets, and the convection and diffusion rate of water vapor across an air space of various dimensions. The influence of the humidity range at constant vapor pressure difference across the faces of the sheet and the influence of testing temperature remain as factors which are not fully evaluated by the proposed method. Data are presented to show that the first of these factors is of sufficient importance to receive recognition in a proposed testing method. There is some evidence to show that the temperature factor may be of equal importance but additional data are required to determine its exact influence on the permeability of various sheet materials.

A symposium held at the annual meeting of the Technical Association of the Pulp and Paper Industry in February, 1937, dealt with the variables to be considered and the existing as well as proposed methods for determining water vapor permeability of sheet materials. *(6)* The many variables mentioned by Carson in his report made at the symposium and published later *(2)* were considered by this committee in formulating a proposed standard method. Other factors to be recognized in a suitable testing procedure were mentioned, particularly by Scroggie and Taylor in their remarks at the meeting. The discussion at the symposium and during informal meetings following it brought out additional information which was used to the best advantage in designing a testing method.

The method as finally proposed follows:

Suggested Procedure for Determining Water Vapor Permeability

Apparatus

An open mouthed cup or dish of a size and shape that can be readily accommodated on the pan of an analytical balance should be used in this test. The area of the opening should be as large as practical, an area of at least 30 sq. cm. being preferred.

The desiccant required should have a powerful affinity for water vapor and high drying efficiency, that is, a low water vapor pressure after absorbing a large amount of water. The desiccant should remain essentially unchanged in physical condition and exert no chemical or physical action on membrane materials with which it is in contact other than dehydration effects. Anhydrous magnesium perchlorate made by the G. Frederick Smith Co., Columbus, Ohio, fulfills the above requirements quite adequately.

The testing room or cabinet necessary for this test should be kept at 21 deg. C. (± 0.5 deg. C.) and 65 per cent relative humidity (± 2 per cent) and be provided with a fan for maintaining a strong current of conditioned air over the face of the sheets on test.

Test Specimen

The samples selected from the material to be tested should be fairly representative of the sheet material. At least two tests from each side of the material should be made thus making a total of four tests which are used in obtaining an average.

Procedure

Place sufficient desiccant inside the test cell to cover the sheet area to a depth of about 5 mm. Fasten the sheet material to the open mouth of the cell by a suitable means and in such a way that there is absolutely no leakage from the cell nor through the edges of the sheet material. The notes on means for attaching the specimen to the cell *(3)* offer valuable aid in performing this step.

Weigh the assembly on an analytical balance using a tare weight having a volume very nearly the same as that of the test cell. Place the cell inside the testing room or cabinet in an inverted position so that the layer of desiccant is in direct contact and evenly distributed over the inner face of the test sheet. A suitable frame or rack within the testing room should be provided for holding the cells in

* To be presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Roosevelt Hotel, New York, N. Y., Feb. 20-23, 1939.

[1] Chairman, TAPPI Water Vapor Permeability Subcommittee, Marathon Paper Mills, Rothschild, Wis.

such a way that free access of the conditioned air is provided on the exposed surface of the sheet.

Successive weighings of the assemblies should be made at intervals of several hours until a constant rate of gain of the assembly is attained. Plot the weight gains against time and the slope of the resulting curve will furnish a measure of the water vapor permeability.

Report

The water vapor permeability shall be reported as grams per square meter per 24 hours at 21 deg. C. and 65 per cent relative humidity. The area of test sheet must be defined very sharply in order to eliminate errors arising from an inexact measure of the sheet size.

Precision

Duplicate determinations should give checks within ± 5 per cent, depending largely on the variation in the sheet material itself. The spread between very permeable sheets and those having a low permeability is at least a thousandfold. Therefore a precision of ± 5 per cent on a given material will establish it quite definitely in the scale of permeabilities normally found in sheet materials.

Scope

This test is intended for use as a reference method for determining the comparative performance quality of papers and paper boards used as packaging materials within the range of temperatures and humidities in which the rate of transfer of moisture is substantially proportional to the difference in vapor pressure. In the case of special use requirements, particularly those involving very high relative humidities, or extremes of temperatures, it may be necessary or desirable to use controlled conditions other than those specified, in which case these conditions should be stated in the report.

The means employed for fastening the sheet material to the testing cup or dish is left largely to the ingenuity of the individual using the proposed method. Therefore the further suggestion is made that the "Notes on Means of Attaching the Specimen to the Dish or Cell" by F. T. Carson *(3)* be seriously considered as part of the testing procedure.

TABLE I
SHEET MATERIALS USED IN COOPERATIVE WATER VAPOR PERMEABILITY TESTS

Sheet	Basis (24x36-500) lb.	Square Inches per lb.	Caliper Inches	Wt. of Wax (24x36-500) lb.	Description
Rubber derivative	23.2	18,650	0.0013	—	Rubber hydrocarbon-Hcl polymer
Regenerated cellulose moisture-proof	22.2	19,500	0.0010	—	Viscose sheet coated with nitrocellulose lacquer
Regenerated cellulose non-moisture-proof	20.1	21,500	0.00088	—	Viscose sheet
Waxed paper wet waxed ...	39.4	10,970	0.0025	11.9	Sulphite paper with internal and surface wax
Waxed paper Dry waxed ...	44.9	9,620	0.0033	8.1	Sulphite paper with internal wax only
Cellulose Acetate non-moisture-proof	17.3	25,000	0.00088	—	Cellulose ester
Glassine	25.0	17,300	0.00115	—	Hydrated and super-calendered sulphite paper

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Copies of the proposed method, the suggested procedure for attaching the sheet and samples of seven different sheet materials covering a wide range of permeability were sent to cooperating members of this committee. A description of the sheet materials sent out for test will be found in Table I.

These samples of sheet material were tested for water vapor permeability by eleven members of the committee. The laboratories which submitted tests were comprised of two government laboratories, two commercial testing laboratories, one educational institution, and the laboratories of four paper mills and two manufacturers of cellulosic film materials. The results are shown in Tables II and III.

Discussion of Results

General

A study of the results shown in Table III shows that the ranking of the sheets is fairly consistent in the scale of permeabilities covered. In every case the dry waxed and glassine sheets ranked fourth and fifth respectively. The greatest variation in rank occurs in the case of the three low permeability sheets; that is, wet waxed sulphite, rubber derivative, and moistureproofed regenerated cellulose. However, an examination of the detailed data shown in Table II reveals that in many cases individual test values from a given laboratory on one of these sheets were considerably larger than the average value of the tests made by the same laboratory on the next higher ranking sheet. Therefore, the variation in rank between these three sheets is not surprising. Besides, the low range of values for water vapor permeability shown by these sheets means that extremely small amounts of water vapor have passed through them during the test. Consequently slight errors which may be introduced in the weighing of the assembly, adsorption of water by the testing cell, non-uniformity in the sheet itself and errors inherent in manipulation become proportionately much larger. Consider, for example, that an error of only 0.001 gram in weighing is equivalent to a permeability of 0.3 g. per sq. meter per 24 hours on a 30 sq. cm. area test sheet.

The large actual deviations between the results found by the various cooperators, particularly in testing the high permeability sheets would lead to the conclusion that the proposed method is not satisfactory. One investigator, however, carried out additional tests on these sheets and found that very consistent results could be obtained if he amount of desiccant used in the test dish was increased so that the depth of desiccant was 15 mm. or more instead of the recommended amount of 5 mm. Additional tests made on these high permeability sheets in the writer's laboratory checked this finding. Compare, for example the results found by laboratories B and H shown in Table II on the high permeability sheets. Reasonably good checks were obtained between these two laboratories, both using a fairly large excess of desiccant within the test cell. Unless there is a sufficient amount of desiccant present, the layer of desiccant in contact with highly permeable sheets becomes saturated with water in a few hours. The permeability values obtained when such a condition develops are invariably high, contrary to what might

TABLE II

WATER VAPOR PERMEABILITY OF SHEET MATERIALS AT 21.1 DEG. C. AND RELATIVE HUMIDITIES OF 65 PER CENT OUTSIDE AND 0 PER CENT INSIDE

1. Laboratory II. Relative Humidity—Per cent III. Temperature—deg. C.		Side of sheet toward desiccant	Rubber Derivative	Water Vapor Permeability of Sheet (Grams per square meter per 24 hrs.) Regenerated Cellulose Moisture proof	Regenerated Cellulose Non-Moisture proof	Waxed Paper Wet Waxed	Waxed Paper Dry Waxed	Cellulose Acetate Non-Moisture proof	Glassine
I	A	1a	2.1	2.1	256	2.6		302	137
		b	1.0	2.6	230	2.6		339	197
II	65	c	1.2	2.7	239	2.9		330	167
		d	1.4	2.4	237	2.6		336	171
III	21.1	Ave.	1.4	2.5	241	2.7		327	168
		2a	1.6	3.1	203	3.1		308	141
		b	1.0	2.1	248	3.1		343	189
		c	1.0	2.3	244	3.3		326	174
		d	1.2	2.6	228	3.0		329	159
		Ave.	1.2	2.5	231	3.1		327	166
		Final Ave.	1.3	2.5	238	2.9		327	167
I	B	1a	1.11	0.52	436	0.69	26.6	397	202
II	65	2a	1.11	0.86	404	0.79	39.7	390	208
III	21.1	Ave.	1.11	0.69	420	0.74	33.2	394	205
I	C	1a	1.6	4.8	416	1.6	29.6	589	306
		b	2.4	4.8	416	0.8	33.6	645	340
II	65	Ave.	2.0	4.8	416	1.2	31.6	617	323
III	21.1	2a	2.4	4.0	416	1.6	34.4	618	297
		b	2.4	5.6	416	0.8	42.2	639	341
		Ave.	2.4	4.8	416	1.2	38.3	629	319
		Final Ave.	2.2	4.8	416	1.2	35.0	623	321
I	D	1a	1.82	2.14	385	2.34	28.8	440	171
		b	1.95	1.92	366	2.18	28.3	397	206
II	65	Ave.	1.88	2.03	376	2.26	28.6	419	189
III	21.1	2a	1.89	2.86	537	2.40	25.9	411	183
		b	2.07	2.28	549	1.56	26.2	387	184
		Ave.	1.98	2.57	543	1.98	26.1	399	184
		Final Ave.	1.93	2.30	459	2.12	27.3	409	186
I	E								
II	65								
III	21.1								
		Final Ave	1.70	1.92	575	2.87	2.45	508	244
I	F	1a	1.75	1.50	477	1.67	24.1	502	283
		b	1.72	0.91	455	3.22	28.7	480	270
II	65	Ave.	1.74	1.21	466	2.45	26.4	491	277
III	21.1	2a	1.79	1.66	476	1.84	23.7	478	252
		b	1.84	1.39	479	1.55	27.5	487	278
		Ave.	1.82	1.53	478	1.70	25.6	483	265
		Final Ave.	1.78	1.37	472	2.07	26.0	487	271
I	G	1a	1.52	0.57	273	0.65	17.1	393	155
		b	2.12	0.65	276	0.96	20.2	389	156
II	65	Ave.	1.82	0.61	275	0.81	18.7	391	156
III	21.1	2a	1.97	0.65	265	0.78	20.8	411	137
		b	1.63	0.65	270	0.93	26.7	401	135
		Ave.	1.80	0.65	268	0.86	23.8	406	136
		Final Ave.	1.81	0.63	271	0.83	21.2	399	146
I	H	1a	1.46	3.79	362	4.49	33.8	376	206
		b	1.51	4.01	413	3.73	39.0	391	213
II	65	Ave.	1.49	3.90	388	4.11	36.4	384	210
III	21.1	2a	1.74	1.51	403	2.24	32.8	399	219
		b	1.69	1.70	379	2.40	33.1	391	219
		Ave.	1.71	1.62	391	2,32	33.0	395	219
		Final Ave.	1.60	2.76	389	3.21	34.7	389	214
I	I	1a	2.67	2.50	872	3.86	32.2	523	284
		b	2.85	2.15	834	3.95	31.6	490	286
II	65	Ave.	2.76	2.33	853	3.91	31.9	507	285
III	22.2	2a	2.70	1.62	950	3.16	37.2	512	289
		b	3.35	1.82	792	3.33	44.7	521	289
		Ave.	3.03	1.72	871	3.25	41.0	517	289
		Final Ave.	2.89	2.02	862	3.57	36.4	512	287
I	J	1a	2.48	5.21	394	10.6	28.1	421	182
		b	3.37	3.21	443	4.2	28.0	394	187
II	65	Ave.	2.93	4.21	419	7.4	28.1	408	185
III	21.1	2a	1.84	2.53	380	2.4	30.5	421	202
		b	1.48	1.11	382	3.1	22.4	428	196
		Ave.	1.66	1.82	381	2.8	26.5	425	199
		Final Ave.	2.29	3.02	400	5.1	27.2	416	192
I	K								
II	45								
III	22.2								
		Final Ave.	1.22	2.16	68.7	0.80	15.4	292	43.3

be expected because of the lowered drying efficiency of the desiccant. On the other hand the wet desiccant seems to break down the sheet material itself and the rate of passage of water vapor through the damaged membrane actually increases. Additional experiments made with highly permeable sheet materials have shown that, by having a large excess of desiccant within the test cell and reversing the cell at intervals of several hours or when a weighing is made so that fresh desiccant is brought in contact with the membrane, the test can be continued for four or five days without injury to the sheet from wet desiccant. Undoubtedly, such precautions will have to be taken in testing very permeable sheets by the proposed method. More frequent weighings during the period of constant rate of moisture transpiration should furnish reliable permeability data for high permeability materials also.

Temperature and Humidity Conditions

The work of many investigators has shown the importance of controlling temperature and humidity

conditions within the testing cabinet or room to within very narrow limits. Small variations in either of these factors have a very marked influence on the permeability values obtained. A study of the data presented in Table II indicates that the temperature and humidity conditions prevailing in the testing chambers employed by the several cooperators varied appreciably from one another. The permeability values for the dry waxed sheets particularly bear out this observation. This sheet gave sufficiently large values to minimize any minor errors which might enter into the determination, yet the results were not so large that the factor of saturation of the desiccant would become of importance. Nevertheless the values for permeability on the dry waxed sheet varied from 26.0 to 35.0 when the tests were made under presumably comparable conditions. It is also significant that there is a general tendency for all values from any single laboratory to be either high or low to correspond with the value found on the dry waxed sheet from that particular laboratory.

Effect of Humidity Range at Constant Vapor Pressure Gradient

The rate of transpiration of water vapor through a sheet has been observed to depend not only on the vapor pressure gradient across the two faces of the sheet but also on the range of humidities chosen for the test. Tests made in the writer's laboratory on glassines coated with two different types of lacquer have shown quite conclusively that the effect of the humidity range is of real significance in a determination of water vapor permeability. An examination of the data presented in Table IV shows that the glassines coated with lacquer A are of superior moistureproofness to those coated with lacquer B when both are tested by the proposed method. However, when tested with either water or a saturated solution of Na_2HPO_4 inside the test cell (producing an atmosphere of 100 and 95 per cent relative humidity respectively), the sheets coated with lacquer B show lower permeabilities than those with lacquer A. The comparative tests on the two types of sheets were made in parallel in all cases insofar as temperature and humidity conditions were concerned; therefore, the results are strictly comparable in spite of possible slight variations which may have occurred. The samples were fastened to the test cell by the method advocated by Carson in order to eliminate other minor factors which might influence the results. All of these results were calculated from rate curves obtained over a test period of at least three days. The humidity conditions within the cell are probably very near the theoretical values because these sheets all have quite low permeabilities. *(1)* Note also the difference in permeability found particularly on sheets coated with lacquer A when the same vapor pressure gradient namely 9.37 mm. Hg exists across the two faces of the sheet, but in the one case the humidities are 0 and 50 per cent and in the other case they are 50 and 100 per cent on the two sides of the sheet. Even where the factor of condensation was eliminated by employing an atmosphere of 95 per cent r.h. within the cell the permeability values on glassines coated with lacquer A were much higher than when the conditions on the two faces of the sheet were 0 per cent inside and 50 per cent outside the cell. In the latter case the average permeability with a vapor pressure gradient of 9.37 mm. of Hg was about 0.27 g. per sq. meter per 24 hours as compared to 11.12 g. at 8.44 mm. Hg. under the higher humidity conditions. Note also that the permeability values in the case of both types of lacquered sheets were practically doubled in going from 95 to 100 per cent relative humidity inside the cell, thus showing the pronounced effect of the increased humidity and the condensation which occurred at the same time.

TABLE III
SUMMARY OF WATER VAPOR PERMEABILITIES

(Low Permeability Materials)

Lab.	Rubber Derivative WVP	Rubber Derivative Per cent Deviation	Regulated Cellulose Moistureproofed WVP	Regulated Cellulose Moistureproofed Per cent Deviation	Wet Waxed Paper WVP	Wet Waxed Paper Per cent Deviation
A	1.30	30.1	2.50	13.6	2.90	17.9
B	1.11	40.3	0.69	68.7	0.74	70.0
C	2.20	18.3	4.80	118.0	1.20	51.2
D	1.93	3.8	2.30	4.6	2.12	13.8
E	1.70	8.6	1.92	12.7	2.87	16.6
F	1.78	4.3	1.37	37.7	2.07	15.0
G	1.81	2.7	0.63	71.4	0.83	66.3
H	1.60	14.0	2.76	25.4	3.21	30.4
I	2.89	55.4	2.02	8.2	3.57	45.1
J	2.29	23.1	3.02	37.2	5.10	111.3
K*	1.22	34.4	2.16	1.8	0.80	67.5
Ave.	1.86	20.1	2.20	39.8	2.46	43.8

(High Permeability Materials)

Lab.	Dry Waxed Paper WVP	Dry Waxed Paper Per cent Deviation	Glassine WVP	Glassine Per cent Deviation	Regenerated Cellulose Non-Moisture-proof WVP	Regenerated Cellulose Non-Moisture-proof Per cent Deviation	Cellulose Acetate Non-Moisture-proof WVP	Cellulose Acetate Non-Moisture-proof Per cent Deviation
A	—	—	167	25.1	238	47.1	327	26.6
B	33.2	10.3	205	8.1	420	6.7	394	11.6
C	35.0	16.3	321	43.9	416	7.5	623	39.6
D	27.3	9.3	186	16.6	459	2.0	409	8.3
E	2.45*	—	244	9.4	575	27.8	508	13.9
F	26.0	13.6	271	21.5	472	4.9	487	9.2
G	21.2	29.5	146	34.5	271	39.8	399	10.5
H	34.7	15.3	214	4.0	389	13.5	389	12.8
I	36.4	20.2	287	28.7	862	91.5	512	14.8
J	27.2	9.6	192	13.9	400	11.1	416	6.7
K*	15.4	48.8	43.3	81.0	68.7	84.6	292	34.0
Ave.	30.1	15.5	223	20.6	450	25.2	446	15.4

* These data were not used in the averages shown.

TABLE IV
THE INFLUENCE OF THE RELATIVE VAPOR PRESSURE ON THE WATER VAPOR PERMEABILITY OF LACQUERED GLASSINES

Test No.	Testing Conditions Temperature Deg. C.	Relative Humidity — Per cent Inside Cell	Outside Cell	Water Vapor Permeability Gms. per sq. meter per 24 hrs. Lacquer A	Lacquer B
1	21.1*	0	50	0.20	1.3
		95	50	6.9	7.5
		100	50	19.2	12.0
1a*	21.1	0	50	0.47	2.5
		100	50	16.4	10.7
2	21.1	0	50	0.39	0.74
		95	50	13.18	3.88
		100	50	27.0	8.20
3	21.1	0	50	0.26	0.74
		95	50	10.54	2.93
		100	50	23.2	6.19
4	21.1	0	50	0.22	0.65
		95	50	13.88	3.35
		100	50	20.7	10.50

* This test was made as a check on Test No. 1.

These tests might first be supposed to be isolated cases resulting from abnormal variations in the lacquered sheets or from errors in testing. However, such results have been found to occur consistently on many sheets of the two types concerned. As a matter of fact, the times when the effect just noted does not occur are rather rare exceptions. Moreover, extensive field tests using these two sheets for packaging both dry and moist food products have borne out the laboratory tests quite conclusively.

The utility of lacquer A coated glassine as a packaging material is determined by the particular humidity conditions employed in measuring its permeability. For example, a test made on this sheet by the proposed method would indicate that it should be an

excellent packaging material or wrapper for such materials as pop corn, potato chips, dry cereals and similar products. Actually, this is the case. On the other hand, this same sheet is not as satisfactory for preventing moisture loss in such materials as bread, cakes and other bakery products where high humidities prevail within the package. The proposed method for determining water vapor permeability gives no information on the value of the sheet under humid conditions within the package. This is a serious shortcoming of the proposed method for permeability measurement, and there does not appear to be any simple means of overcoming it at the moment.

Precision of Proposed Method

The sheet materials used in this cooperative work fairly represent the range of water vapor permeabilities normally encountered. The spread in values for permeability reported vary almost a thousandfold and the percentage deviation from the average for any particular sheet is as much as 118 per cent. The largest deviations occur in the case of the low permeability sheets. Deviations in the high permeability sheets would very likely be much smaller if precautions were taken to eliminate saturation of the desiccant. Normal variations in the sheet material appear to preclude setting close tolerances for percentage deviation in the case of highly moisture-proof materials where, even under very carefully controlled conditions a deviation of 100 per cent may occur. In other words, the permeability values may be quite satisfactory in spite of large percentage deviations on low permeability sheets. At the same time an equal percentage deviation on sheets of high permeability may represent a large error in the determination. Therefore, a dual tolerance may be required which recognizes both the absolute deviation and the percentage deviation of the permeabilities for various materials.

Conclusions

The proposed testing method will be seen to have answered many of the objections raised against other existing methods. The elimination of the unknown factor of rate of diffusion of water vapor through an air space of variable thickness within the test cell appears to be a definite improvement over many methods. The factor of the influence of condensate on the test sheet has also been removed from the procedure. The total pressure difference across the specimen is zero under the proposed method, a condition which has been generally accepted as satisfactory. Maintaining humidities of 0 and 65 per cent across the faces of the specimen takes advantage of a fairly large humidity gradient, eliminates the effects of condensation on the sheet and utilizes one of the existing standard humidity conditions, namely 65 per cent, now employed in paper testing. The precautions advocated by Carson in fastening the specimen to the cell should remove any possibility of edge leakage in making a permeability test. Exact definition of the area of sheet being tested by proper sealing methods and the use of the largest area which can be readily accommodated on an analytical balance are essential features of the proposed method.

Much controversy has centered about the choice of the unit for expressing permeability. The use of grams per square meter per 24 hours has been chosen rather arbitrarily, but it will express permeabilities of most materials in whole numbers. Of course, there are some materials which will sometimes show values less than 1.0 but to use a unit which would make these values whole numbers brings the value for high permeability materials up into the thousands. The use of such large figures will be argued against by many because such figures are likely to be cumbersome.

Choosing the conditions of 21.1 deg. C and 65 per cent r.h. on the one face of the sheet has been based largely on existing standard paper testing conditions. The length of time required to make a test on low permeability sheets under these conditions is quite long. Therefore conditions where a higher temperature is used have been advocated. Experimental evidence showing the influence of temperature on water vapor permeability shows that for moistureproofed regenerated cellulose *(4)* this relationship is a straight line at lower temperatures, but the permeability values rise at an increasing rate as the temperature reaches values of 45-50 deg. C. The explanation given for this phenomenon is that some components of the moistureproofing film undergo a change in physical state at these higher temperatures, thereby losing the property of contributing toward the moistureproofness of the composition. Other work *(5)* in which paint films were tested at constant vapor pressure differences but varying temperature showed that the permeability was only slightly influenced by temperature except when high humidities were employed to maintain the vapor pressure difference chosen. It is conceivable that other types of material will show characteristic inflection points in the temperature-permeability curve and one can only guess the shape of the curve at low temperatures such as those employed in the frozen food industry where moistureproofness is of definite concern. Therefore the temperature of 21.1 deg. C as recommended, while arbitrary, is probably a reasonable compromise. Nevertheless, one can readily visualize that, where the choice of a certain wrapper must be made on the basis of its performance under a given temperature, a test of its permeability at some other temperature may give entirely erroneous values.

Similarly, the choice of humidity range is of equal if not greater importance. The comparisons made on the two types of lacquered glassines whose permeability values when tested over different humidity ranges show that the importance of this factor cannot be underestimated.

A critical study of the proposed method and the results presented in this report is earnestly solicited by this committee. Suggestions for its improvement, especially as regards the factors of humidity range and acceleration of the test are needed. Criticisms of the present work and suggestions which may prove helpful in eventually developing a suitable procedure for testing water vapor permeability will be of definite value to those interested in this important property of sheet materials.

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Developments in Coating and Drying*

By H. G. Rappolt[1]

Abstract

The coated paper manufacturing methods are outlined, indicating possible changes to present equipment, or new methods; to increase production, cut costs, and improve quality. High temperature vs. low temperature drying is discussed.

A combined chart shows the steam requirements for high temperatures with varying percentages of exhaust, and drying forces; and low temperature drying steam consumption.

Since the majority of coating processes are of the brush coater and festoon type, we can assume a plant so equipped, and examine the possibilities.

How To Get Increased Production

Increased production may be obtained in any one or more of the following ways:

(A) DUPLICATING PRESENT UNITS. This obviously increases production, but the cost items, such as labor, drying, machinery, etc., increase proportionately.

(B) MODERNIZING PRESENT EQUIPMENT. The production per unit could be increased, up to the limits of festoon rack practice. The speed limit of the festoon system is generally considered to be about 300 feet per minute for moderate and wide webs, and 400 to 450 feet per minute for narrow sheets such as wall paper, and for board. It is believed possible with certain radical changes in the design of the incline and takedown to increase the limits for paper to about 400 feet per minute, but this must be proven. The modernizing generally consists of revamping: (1) The drying system, or, (2) The incline or takedown; or both.

(C) USING NEW TYPE OF EQUIPMENT: This may be divided into (1) coating and (2) drying.

(1) *Coating.* The standard revolving brush type of application may be supplanted, for higher speeds by the following:

(a) Roll application, reverse type or squeeze roll with or without blending brushes.

(b) Centrifugal coater, where the coating is applied as a mist produced by a centrifugal effect, and the paper does not contact the revolving roll.

(c) Air brush coater, applying an excess of coating with a roll and removing the excess by a high pressure air jet.

(d) Print style of coater, which may be of the stiff ink distribution type, using a high solids content coating, or the engraved roll type.

(e) Double coater. This is usually a squeeze or metering roll arrangement followed by top and bottom high speed blending brushes.

(f) Casting from highly polished plated surface.

(g) Pneumatic brush motion, permitting brush speeds of 1500 to 2000 strokes per minute.

(2) *Drying.* To overcome the speed limitations of the festoon rack, and possible stick mark objections, various arrangements have been thought of, or used. Some are as follows:

(a) A straight pass tensionless drier, which supports the sheet on a driven cross stick conveyor with some form of looper at the end to synchronize it with the winder.

(b) Curved or arched tension drier. This may take the form of a slightly arched pass, carrying the sheet on a driven conveyor, or a series of driven rolls; or a more severely arched section with return pass such as used on gummed paper. The sheet may also be carried on one or more large skeleton wheels.

(c) Tower Drier. For single or double coated paper, where floor area is limited. With the double coat, the side that touches the head roll must be dried enough to prevent pick-off.

(d) Drying on paper making machine. The coating may be applied at various points of stock dryness, and set with more or less air drying before going back on to the drying cylinders.

(e) Drying on drier rolls, independent of the paper making machine. This also pre-supposes some air drying before contacting rolls.

(f) Drying on highly polished plated rolls.

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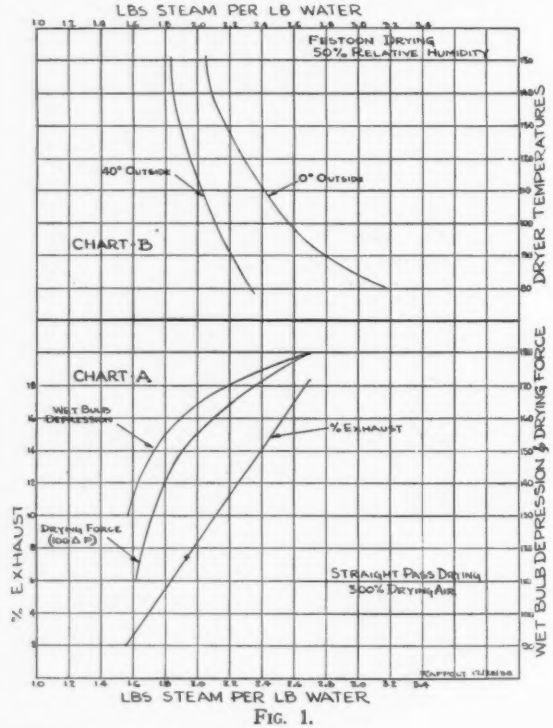

FIG. 1.

(g) Floater type drier, followed by straight pass section or festoon.

(D) CHANGING COATING OR COATING MATERIALS.

(1) Using other adhesives than casein.

(2) Using other solids with more opaque properties to permit less coating weight.

(3) Using higher solids content; made possible by

(a) Improving mixing technique.

(b) Addition of certain ingredients to lower viscosity for given solids content.

(c) New methods of application, such as print roll arrangement.

How To Obtain Lower Costs

Lower costs may be obtained by:

(A) REDUCING LABOR PER POUND OF PAPER.

(1) Increasing speed of present equipment.

(2) Installation of new high speed equipment.

(3) Double coating.

(4) Arranging for tandem operation.

(5) Coating on paper making machines.

(6) Increasing paper width.

(B) REDUCING OVERHEAD.

(1) Duplicating present equipment in present building.

(2) Increasing present production per unit.

(3) Installing new high speed lines.

(C) REDUCING FUEL COSTS.

(1) *Enclosures.* An enclosed dryer prevents hot air from drifting away from drying lines.

(2) *Insulating materials.* For enclosure and exposed duct work.

(3) Temperature and humidity control. To reduce overdrying, and to prevent wasting too much heat in exhaust.

(4) *High solids content in coating.* It should be kept in mind that a 25 per cent solid coating requires an evaporation of 2½ times the water in a 45 per cent solid mix.

(5) *Higher temperature drying.* This permits a small percentage of exhaust which means a small heat loss from this source. However, for a given dry-bulb temperature, the drying rate is lowered as the exhaust is decreased, and an economic balance must be made between speed and steam costs. See Chart A, Fig. 1, showing relation between per cent exhaust and steam per pound of water, and between drying force and steam. See Chart B, Fig. 1, showing the effect of raising the temperature of festoon drier on steam consumption.

(6) *Use of high pressure hot water instead of steam, where steam is not required for power.* With this system there is no make-up water required, no traps, no flash losses, and smaller piping may be used.

(D) REDUCING BROKE.

How To Obtain Improved Quality

(A) HIGH TEMPERATURE VS. LOW TEMPERATURE DRYING.

There seems to be some difference in opinion on the quality of coated paper dried at high temperature, and it does not look as if high production and high quality might be good traveling companions. Perhaps we should discuss white paper, colored paper and board separately.

(1) *White paper.* Many coating men believe that high temperature high speed drying lowers the quality considerably. Some claim that the bond between the clay and paper is weaknened, causing flaking on the fold test, or pick-off test. Others claim that a rough surface is produced, which does not calender well. On the other hand, users of high temperature drying units say they can produce the highest quality coated paper.

(2) *Colored paper.* It has been found that very fast drying with certain colors and stocks causes a decided and objectionable mottling effect. The color seems to adhere to exposed fibers instead of spreading, or soaking in.

(3) *Board.* Fast drying tests have indicated a serious weakening of bond, with excessive flaking. Even reduced temperatures with straight pass drying did not seem to eliminate this effect.

(B) MOISTURE CONTROL.

No matter what type of drying is used, it is desirable to have a certain amount of water in the dried sheet. This is necessary for good calendering, and to prevent distortion of the sheet during the subsequent printing operations. The control problem is different for the short interval dryer and the festoon drier.

(1) *Short Interval Drier.*

(a) Moisture indicating device on paper leaving drier. Operator must make corrections manually.

(b) The above instrument might possibly be used as a basis of controlling air temperature or speed of material.

(c) Paper might be rehumidified in separate apparatus before or after calendering.

(2) *Festoon Drier.*

There are two ways of approaching the problem of moisture control in festoon drying:

(A) Controlled Drying. This method was described in a paper presented in 1932 and published in the 1932 Technical Association Papers. This consists of the following:

(1) Enclose each line separately.

(2) Use separate apparatus for each line.

(3) Control dry bulb temperature to take care of change of coating weight, speed, stopping rack, etc.

(4) Control humidity by means of make up and exhaust air, to balance change of drying conditions.

(B) Rehumidifying after Drying. This method assumes a standard festoon line that may or may not have an individual drying apparatus. At the end of this line a humidified air system is used to put some moisture back into the overdried paper to help in the takedown and winding operations, improve calendering, and relieve stresses set up in the drying process. This arrangement has been in use for many years, but lately it has been found desirable, if not necessary, to precondition the paper before the humidifying chamber.

The most foolproof arrangement for festoon drying would probably be a combination of controlled drying and the safety balance wheel of the humidifying unit.

The Desirable Moisture and Alkali Content of the Sludge Discharged Into the Recovery Kiln*

By M. B. Mount[1]

Abstract

Several existing problems relating to lime plant operation are mentioned with suggested solutions. These include lime recovery; the causticizing character and settling qualities of fresh lime vs. recovered lime; the proper moisture content of the filter cake discharged to the recovery kiln; lime sludge filtration; the alkali content of the filter cake; type of fuel for firing a rotary kiln; the advisability of using lime-kiln dust; and the ways of preventing and eliminating of rings in the kilns.

In the preparation of this paper I have consulted a number of men connected in one way or another with the production of sodium hydroxide and the reclamation of the waste materials incidental to this operation. Among others, outstanding specialists in the production of soda and sulphate pulps, in the manufacture of caustic in connection with the operation of ammonia-soda plants, and in the design and creation of the equipment about to be discussed, have contributed their thoughts. This variety of opinion is supplemented by data accumulated over a period of nearly forty years.

Lime Recovery in Pulp and Paper Mills

It is my understanding that the process of lime reburning was conceived, developed, and perfected outside the paper industry and later adopted by this industry. It was no small task to adapt the idea to the requirements of the pulp mill, largely because of the fluctuations in the demand for digester liquor and in the supply of carbonate liquor to the causticizing system. The trouble underlying it all was that the mills were primarily concerned with the manufacture of pulp and paper, not with the manufacture of caustic for sale.

The result was that the operation of the causticizing plant and its adjunct, the lime recovery unit, was given little attention except when there was a shortage of liquor for the digesters and then there was apt to be a condemnation of the whole idea. But fortunately there were men with sufficient vision to diagnose the cause of the many difficulties and to devise and to apply the proper remedies. A case in point is the experience of the sulphate mills, where in the early days, lime recovery was tried out. It was generally said that the idea was not applicable to the sulphate mill but that it might work in the soda mill; indeed, here was a period of years when installed lime reburning units stood idle, when one sulphate superintendent advised another to have nothing to do with it. And then someone advanced the theory that the presence of impurities in the green liquor supplied to the causticizing system made it impossible to secure a reburned lime that could be used unless the entire amount of lime in process be periodically discarded. The next step was to devise a process for the elimination of the objectionable impurities. Such a process was developed and since has been improved upon. There is room for further improvement but from the standpoint of the sulphate mill operator the chemical problem has been solved.

The outcome has been that lime recovery is now generally accepted in soda and sulphate mills as more or less standard practice and it is usually provided for in the design of a new mill. While the economic factor has been the chief stimulus to this development the problem of waste disposal and the increasing demand on the part of the general public for unpolluted streams has also been influential. I hope that in asking the questions that follow I may be able to provoke discussion that will benefit us all.

Does Recovered Lime Causticize and Settle More Readily Than Fresh Lime?

The answer to this question, in my judgment and in that of others, is definitely in the affirmative, provided that the recovered lime is properly burned.

It is generally known and I think generally admitted that two high calcium limes of similar chemical analysis but made from raw stone different in physical structure will exhibit different behavior when put to different usages. For example, as a rule, a lime made from a coarse-grained stone proves more satisfactory for causticizing and bleach-making purposes than a lime made from the fine-grained limestones.

The paper maker wants a lime that will settle quickly when used in causticizing and in the preparation of bleach liquor. The tanner, on the other hand, wants a lime that will stay in suspension for he is using it as a depilatory and wants it to remain in contact with his green hides for as long a period as possible. He does not want quick settling.

Turn to any reference book dealing with lime that you may select and you will find little or nothing that explains why one lime is suitable for paper making and another is not. The limited amount of information at hand and the observations of many experienced mill operators, however, would seem to indicate that it is a matter of particle size and the structure of those particles. At least one equipment manufacturing concern, the Dorr Company, has done considerable research work on this point and their findings would seem to bear out that conclusion.

My theory about properly reburned lime is that the particles upon being circulated and recirculated

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undergo a marked structural change; they seem to become larger and distinctly more granular. As a matter of fact I have seen reburned lime which, when used for causticizing, produced a slurry almost meal-like in character. That sludge settled in much less time and gave a clearer caustic solution than was the case when fresh lime made from the same stone was used in the same equipment under the same conditions of operation. When the precipitated carbonate reached the filters a thicker and more easily washed cake was obtained.

In causticizing and in sludge filtration the amounts of free or uncombined lime and of magnesium hydroxide are factors which have to be considered. However, since they are just as common to the use of fresh lime as to reburned lime they need not enter into this discussion.

A carefully prepared reburned lime will contribute to better caustic plant operation irrespective of the economics that may be involved in its recovery.

What is the Proper Moisture Content of the Filter Cake as Discharged Into the Recovery Kiln?

Here again we are confronted with the absence of adequate reference books to which one can turn for reliable information. So far as I can learn no authentic data have been published on the subject. It seems to be altogether a matter of individual opinion and preference. Theoretically, the moisture content of the cake should be as low as possible. The minimum practicable with present equipment apparently is a little under 35 per cent.

Some years ago I inspected the lime recovery operation of one of the outstanding kraft mills in the south. I noted that the filters were discharging a thick, well-washed cake apparenly containing not more than 35 per cent moisture but the cake was being repulped with water and run into the kilns as a slurry, containing, I should say, about 60 per cent moisture. When I asked the general manager why this was done he frankly admitted that he did not know that it was contrary to all accepted theory, but that his superintendent insisted that he obained better results by operating in this manner.

When I asked him about the fuel required to evaporate the added water he replied that the cost of natural gas was so low that they could afford to disregard it. Since he was getting a recovery of nearly 90 per cent and an available lime content of 92 per cent, which is as high as that of the general run of fresh lime supplied to the mills, I was not inclined to debate the apparent disregard of accepted theory. I have since learned that this particular mill, desiring to increase the overall capacity of the plant and, incidentally, of the lime recovery kilns, is looking into the question of the proper moisture content in a serious way.

I infer that they want to determine to what extent, if at all, the capacity of heir kilns can be increased by feeding a dry cake, raher than a slurry, and if by making this change they can duplicate the satisfactory results now being obtained. An operator of long experience tells me that the moisture content of the cake discharged into the kiln should be as "low as possible if you have chains in the kiln." This statement suggests the obvious question: Why use drag chains? Are they expected to prevent the formation of rings? Are they expected to increase the capacity of the kiln by picking up the material being charged into it and showering it down through the stream of hot gas, thus improving the evaporation efficiency of the unit?

If it is the one we might assume that chains are more to be desired in the case of a wet-feed kiln for it seems obvious that a slurry would have a greater tendency to stick to the side wall than would a dry cake. If it is the other it seems to me that he chains might be equally helpful for it is well known that the rotary kiln is a poor evaporator.

There is another point that might well be considered in this connection. Recently, I inspected three rotary kilns in a plant making commercial lime for sale to paper mills. Each kiln was of approximately the same size, each was being fired with powdered coal, each had been furnished by a different manufacturer, and each was being charged with identically the same crushed limestone which was predried. Of course there were no rings in the kilns; there was no apparent dust loss. I took samples of the raw stone as it was being charged into the kilns and of the burned lime as it was being discharged from the kilns and had them analyzed. Here were the results.

	Analysis of Raw Stone Per cent	Analysis of Burned Lime Per cent
Moisture	.04	None
Silica, iron and aluminum oxides	1.64	2.20
Calcium oxide	54.88*	95.88
Loss on ignition	43.93**	.06
Magnesium oxide	.56	1.61

* Equal to 98.00 per cent calcium carbonate.
** Combined water, carbon dioxide, and organic matter.

Is there or is there not an analogy between the calcination of raw limestone in a rotary kiln and the calcination of precipitated calcium carbonate in a rotary kiln?

Vacuum Pumps and Lime Sludge Filtration

The function of vacuum in the operation of lime sludge filters has often been questioned but no one seems to have determined its exact status. But we may safely assume that it serves first to help in the washing of the cake and then in its drying.

Closely coupled with the washing and drying of the cake is the factor of alkali recovery; we must also consider the part that it undoubtedly plays in the removal of the moisture originally contained in the slurry and later applied to the filter cake by means of wash sprays or otherwise.

The amount of moisture that should be removed from the washed cake is a question which has been touched upon elsewhere.

It is believed that the degree of vacuum which is attained within the filter system depends on the velocity of the air flow through the cake and it is also held that this velocity is a function of area and volume. The thickness and the porosity of the filter cake naturally are important factors in this equation. If we remove a constant volume of air from the interior of the filter and the filter is operated at a constant speed it is said that the vacuum will be higher if the filter is handling a thick cake than a thin cake but in my judgment this is a question that is open to debate.

What is the proper amount of vacuum to maintain in the system?

Within What Limits Should the Alkali Content of the Filter Cake Fed Into the Kiln Be Confined?

In answer to this question four men with years of experience behind them give the following answers.

The first says: "As low as possible." How shall this answer be interpreted? What is as low as possible? A second says that: "The allowable alkali content will depend to a large extent on the analysis of the alkali. The presence of sulphates or chlorides will cause a lower fusing temperature than the presence of carbonates. However, if the alkali content is held at less an 1 per cent of the weight of the lime little trouble should be experienced from any type of alkali." A third says: "We obtain best results when we feed a slurry containing 0.6 per cent of free alkali." The fourth observes: "Less than five per cent total sodium expressed as Na_2SO_4 as based on dry weight of sludge. Less than 1 per cent would probably be better in most cases, everything considered."

These answers suggest other question:

Why not eliminate all of the alkali from the kiln charge?

What useful function does it perform in the kiln?

Does not alkali in any form combine with the silica content of the kiln lining, thus enhancing the probability of the formation of rings and the spalling of the refractory lining?

Does not free alkali volatilize in the presence of heat and would it not be wasted along with the flue gases?

If the presence of alkali in the kiln charge is beneficial why do the commercial manufacturers of lime not add soda ash or sodium sulphate to the raw limestone which they charge into their kilns.

What Is the Best Type of Fuel That Should Be Used in Firing a Rotary Lime Reburning Kiln?

The locality of the mill and the availability of fuels of different types will inevitably govern the selection of fuel but in general it may be said that the choice should be made in the following order: producer gas, oil, natural gas, and pulverized coal.

I think that the observations of others on these points might be of constructive value.

Is It Worth While to Attempt To Use in the Process the Dust That Accumulates in the Dust Chamber at the Feed End of the Recovery Kiln?

One experienced operator says that the dust should be retired to the dump, as it contains most of the impurities that should be eliminated from the system. Another advises that it be sold for agricultural lime. A third states that he has always returned to the system the fine dust which accumulates in the dust chamber and that he has never had any trouble with it.

One was speaking from the standpoint of the operation of a sulphate mill, the second from the standpoint of the operation of an ammonia-soda plant, and the third from the standpoint of the operation of a soda mill.

What is the answer?

What Is the Best Way To Prevent the Formation of Rings and What is the best Way to Eliminate Them Once They Are Formed?

It seems to me that from the standpoint of observation and experience there are two obvious answers to this question but I hope that others will be suggested.

It is much easier to prevent the formation of rings than it is to get rid of them once they have formed.

The only effective way that I have noted to get rid of a well-developed ring is to shut down the kiln, allow it to cool, and then put a crew of men into it with picks, bars, and shovels; this method means a loss of production for a period of two or three days.

New England TAPPI Discusses Water

About seventy members of the New England Section of the Technical Association of the Pulp and Paper Industry met at the Roger Smith Hotel, Holyoke, Mass., Friday, January 20, 1939. R. H. Doughty of the Fitchburg Paper Company presided as chairman.

The Section observed the passing of one of its members, J. C. Sanburn of the Strathmore Paper Company, by standing for a minute in silent tribute.

W. O. Johnson presented his report as retiring treasurer of the section and was given a hearty ovation for his services since the section was formed. R. G. Macdonald, National Secretary, gave the highlights of the coming annual meeting of the Association to be held at the Roosevelt Hotel, February 20-23, 1939.

H. J. Skinner, President of Skinner and Sherman, Inc., Boston, Mass., was the first speaker and talked on "The Significance of Water." This paper will be published at a later date.

F. P. Lasseter of the Dorr Company, Westport, Conn., presented a paper on "Colloidal Aspects of White Water Treatment". In this paper he stated that the following factors must be evaluated in white water treatment: Types, character and quantities of insoluble solids and the nature of the suspending medium. He also described the mechanism of the flotation step and the application and developed use of two chemicals for use as flocculation—flotation reagents in the white water treatment process. These two reagents belong to the relatively large class of saponified long chain fatty acids known as soaps. This paper will probably be published at a later date.

Among those present were:

Herman Otto, John B. Calkin, R. B. Martin, F. S. Gibbs, F. A. Strovink, H. T. Barker, Kurt Wandel, Gustav Mangsen, R. J. Proctor, L. S. Hodgdon, Robert Mannheim, P. S. Bolton, N. M. Kennedy, E. F. Rothmore, P. S. Sinclair, Leonard N. Smith, E. Whitman Strecker, Thomas Flaherty, Maurice E. Blew, Lena E. Kelley, A. W. F. Newman, W. P. Cohoe, F. W. Schneider, S. F. M. MacLaren, T. L. Stirling, R. C. Charron, W K. Ramsey, Norman Alper, L. W. Crouse, A. M. Altieri, F. K. Becker, D. K. Bartlett, Jr., Roger C. Griffin, William F. Talbot, R. G. Macdonald, W. O. Johnson, H. J. Skinner, W. N. Welch, H. L. Mellen, C. W. Damon, S. A. Brown, W. J. Burke, Franklin Lasseter, Edward Doyle, R. D. McCarron, J. P. Kennedy, R. W. Pattison, Helen U. Kiely, Murray Rubin, J. T. Leecock, D. S. Wegg, A. P. Jackson.

Kalamazoo TAPPI to Meet Feb. 2

The next meeting of the Kalamazoo Valley Section of TAPPI will be Thursday, February 2, at the Park American Hotel in Kalamazoo. This will be a dinner meeting, starting at 6:30 P.M.

Howard F. Roderick, director of research for the Michigan Alkali Company, at Wyandotte, will discuss "Recent Developments in the Production of Calcium Carbonate for Paper Coating." A symposium on "The Use of Calcium Carbonate in Coating" will be led by Wm. Kirkpatrick II, Technical Director of the Allied Paper Company.

At a meeting of the officers of the local section on Friday, January 13, it was decided to have a set of by-laws prepared for this section. A committee composed of Frank Whittington, Harry Bradford, and William Hathaway will have the by-laws ready for approval at the regular March meeting.

Imports of Paper and Paper Stock

Giving Manifests of New York, Boston, Philadelphia and Other Ports of Newsprint, Wrapping, Writing, Coated, Blotting, Tissue, Strawboard, Wallboard, Cigarette Papers, Sulphite, Kraft and Ground Wood Pulp.

NEW YORK IMPORTS

WEEK ENDING JANUARY 21, 1939

SUMMARY

Cigarette paper	571 cs.
Smokers paper	5 cs.
Wall paper	5 bxs.
Wall board	2,100 bdls.
Newsprint	5,192 rolls
Printing paper	12 cs.
Wrapping paper	38 bls.
Packing paper	8 cs.
Drawing paper	2 cs.
Filter paper	2 cs.
Surface coated paper	30 cs.
Metal covered paper	8 cs.
Basic paper	7 cs.
Decalcomanias	61 cs.
Tissue paper	2 cs.
Transparent paper	3 cs.
Pattern paper	1 cs.
Copying paper	2 cs.
Paper tubes	25 cs., 67 ctns.
Straw boards	52 rolls, 898 pkgs.
Miscellaneous paper	456 bls., 1,193 rolls, 29 cs.

CIGARETTE PAPER

Gluckman & Strauch, *American Farmer,* London, 3 cs.
Champagne Paper Corp., *Ile de France,* Havre, 365 cs.
———, *Ile de France,* Havre, 76 cs.
American Tobacco Co., *Ile de France,* Havre, 126 cs.
H. R. Hammer, *Ile de France,* Havre, 1 cs.

SMOKERS PAPER

F. Murray Hills Co., Inc., *Ile de France,* Havre, 5 cs.

WALL PAPER

S. K. Lonegren, *Drottningholm,* Gothenburg, 5 bxs.

WALL BOARD

Treetex Corp., *Drottningholm* Gothenburg, 2100 bdls.

NEWSPRINT

N. Y. Evening Journal, *Markland,* Liverpool, N. S., 647 rolls.
N. Y. Tribune, *Markland,* Liverpool, N. S., 1556 rolls.
World Telegram, *Markland,* Liverpool, N. S., 588 rolls.
Brooklyn Daily Eagle, *Markland,* Liverpool, N. S., 521 rolls.
Herald Statesman, Inc., *Markland,* Liverpool, N. S., 44 rolls.
Clinton Paper Corp., *Markland,* Liverpool, N. S., 1447 holls.
Parsons & Whittemore, Inc., *Klaus Schoke,* Sundsvall, 58 rolls.
Jay Madden Corp., *New York,* Finland, 331 rolls.

PRINTING PAPER

L. A. Consmiller, *New York,* Bremen, 2 cs.
———, *Westernland,* Antwerp, 10 cs.

WRAPPING PAPER

Lunham & Reeve, Inc., *Drottningholm,* Gothenburg, 38 bls.

PACKING PAPER

Phoenix Shipping Co., *New York,* Bremen, 8 cs.

DRAWING PAPER

The Morilla Co., *Cypria,* Marseilles, 2 cs.

FILTER PAPER

———, *American Farmer,* London, 2 cs.

SURFACE COATED PAPER

Gevaert Co. of America, *Westernland,* Antwerp, 30 cs.

METAL COVERED PAPER

K. Pauli Co. *New York,* Bremen, 8 cs.

BASIC PAPER

Dingelstedt & Co., *Westernland,* Antwerp, 7 cs.

DECALCOMANIAS

Sellers Transportation Co., *New York,* Hamburg, 55 cs.
Phoenix Shipping Co., *New York,* Hamburg, 6 cs.

TISSUE PAPER

W. J. Byrnes & Co., *American Farmer,* London, 2 cs., (coated).

TRANSPARENT PAPER

M. J. Corbett & Co., *Zaandam,* Rotterdam, 2 cs.
Globe Shipping Co., *New York,* Bremen, 1 cs.

PATTERN PAPER

Japan Paper Co., *American Farmer,* London, 1 cs.

COPYING PAPER

Roneo Co., Inc., *American Farmer,* London, 2 cs.

PAPER TUBES

———, *New York,* Bremen, 25 cs., 67 ctns.

STRAW BOARDS

A. B. Massa Paper Corp., *Zaandam,* Rotterdam, 52 rolls, 898 pkgs.

MISCELLANEOUS PAPER

Walker Goulard Plehn Co., *Zaandam,* Rotterdam, 18 bls.
The Borregaard Co., Inc., *Drottningholm,* Gothenburg, 1083 rolls, 164 bls.
F. L. Kramer & Co., *Drottningholm,* Gothenburg, 274 bls.
———, *Drottningholm,* Gothenburg, 110 rolls.
E. Fougera & Co., *Ile de France,* Havre, 21 cs.
Rohner Gehrig & Co., *Ile de France,* Havre, 8 cs.

RAGS, BAGGING, ETC.

Irving Trust Co., *Caledonia,* Glasgow, 52 bls. paper stock.
E. J. Keller Co., Inc., *Exmoor,* ———, 208 bls. rags.
Atlas Waste Manfg. Co., *Zaandam,* Rotterdam, 5 bls. rags.
Lieberman Textile Raw Material Selling Co., *Lucia C.,* Trieste, 54 bls. old linen rags.
Darmstadt Scott & Courtney, *Fernglen,* Alexandria, 60 bls. rags.
W. Steck & Co., *Fernglen,* Alexandria, 127 bls. rags, 73 bls. bagging.
E. J. Keller Co., Inc., *Fernglen,* ———, 296 bls. paper stock.
Joe Levy & Son, *American Farmer,* London, 17 bls. rags.
Castle & Overton, Inc., *Scanmail,* Copenhagen, 5 bls. rags.
National City Bank, *G. Maersk,* Antwerp, 150 bls. bagging.
W. Steck & Co., *G. Maersk,* London, 63 bls. old strings.
R. Blank, *Collamer,* Havre, 427 bls. rags.
Brandwein Mazur Co., *Collamer,* Havre, 59 bls. rags.
Manufacturers Trust Co., *Collamer,* Dunkirk, 62 bls. rags.

BONE GLUE

———, *Vulcania,* Trieste, 100 bags.

OLD ROPE

E. J. Keller Co., Inc., *Lucia C.,* ———, 98 coils.
———, *Bassano,* Hull, 83 coils.
W. Steck & Co., *G. Maersk,* London, 74 coils.

WOOD PULP

J. Andersen & Co., *Batory,* Gdynia, 280 bls. sulphite, 36 tons.
Castle & Overton, Inc., *Batory,* Gdynia, 450 bls. sulphite, 45 tons.
———, *Lucia C.,* Trieste, 424 bls. wood pulp.
J. Andersen & Co., *Drottningholm,* Gothenburg, 450 bls. sulphite.
Perkins Goodwin & Co., *Drottningholm,* Gothenburg, 94 bls. sulphate.
Castle & Overton, Inc., *Drottningholm,* Gothenburg, 300 bls. dry pulp.
Bulkley Dunton Pulp Co., Inc., *Klaus Schoke,* ———, 750 bls. sulphite, 150 tons; 2100 bls. sulphate, 426 tons.
———, *Klaus Schoke,* Hernosand, 9810 bls. sulphate; 5300 bls. sulphite.
———, *Klaus Schoke,* Obbola, 9450 bls. sulphate, 1350 tons.
Cellulose Sales Co., Inc., *Klaus Schoke,* Sundsvall, 2375 bls. sulphite, 477 tons.
Mead Sales Co., Inc., *Klaus Schoke,* Sundsvall, 1500 bls. sulphite, 300 tons.
M. Sone, *Klaus Schoke,* Sundsvall, 900 bls. dry pulp.

Pulp Sales Corp., *Scanmail,* Kotka, 5300 bls. sulphite, 1060 tons; 702 bls. mechanically ground pulp, 140 tons.
Pulp Sales Corp., *Scanmail,* Wiborg, 5270 bls. sulphate, 1054 tons.
Absorbo Beer Pad Co., *Vulcania,* Trieste, 600 bls. wood pulp.

WOOD PULP BOARDS

H. Fuchs & Son, *Drottningholm,* Gothenburg, 21 crates.
Jay Madden Corp., *Scanmail,* Kotka, 222 rolls, 75 tons.
Jay Madden Corp., *Scanmail,* Wiborg, 8 bls.

PORTLAND IMPORTS

WEEK ENDING JANUARY 21, 1939

M. Sone, *Hedrun,* Gdynia, 2625 bls. wood pulp.
Pagel Horton & Co., Inc., *Boren,* Sweden, 13966 bls. wood pulp.
Gottesman & Co., Inc., *Boren,* Sweden, 18378 bls. wood pulp.
Price & Pierce, Ltd., *Boren,* ———, 300 bls. unbleached sulphite; 426 bls. unbleached sulphate.

BOSTON IMPORTS

WEEK ENDING JANUARY 21, 1939

———, *Black Heron,* Antwerp, 91 bls. rags, 72 bls. thread waste, 44 bls. threads.
E. Butterworth & Co., Inc., *Black Heron,* Antwerp, 48 bls. bagging, 50 bls. pickers.
E. J. Keller Co., Inc., *Black Heron,* ———, 694 bls. rags.
E. Butterworth & Co., Inc., *Black Heron,* Rotterdam, 177 bls. glue stock.
———, *Collamer,* Dunkirk, 70 bls. rags.
E. J. Keller Co., Inc., *Collamer,* ———, 72 bls. bagging, 1006 bls. rags.
Castle & Overton, Inc., *Collamer,* Havre, 404 bls. rags.
W. J. Green Co., *Collamer,* Havre, 16 bls. rags.
Pagel Horton & Co., Inc., *Uddeholm,* Sweden, 1400 bls. wood pulp.
Gottesman & Co., Inc., *Uddeholm,* Sweden, 2095 bls. wood pulp.
Price & Pierce, Ltd., *Tugela,* ———, 750 bls. bleached sulphite.

PHILADELPHIA IMPORTS

WEEK ENDING JANUARY 21, 1939

United Clay Mines Corp., *Zaandam,* Rotterdam, 100 bags china clay.
F. Weber & Co., *Vincent,* London, 6 cs. drawing paper.
N. Y. Trust Co., *Vincent,* Hamburg, 675 bls. wood pulp, 134 tons.
———, *Vincent,* Hamburg, 281 rolls, 53 bls. wrapping paper.
Philadelphia National Bank, *Vincent,* Hamburg, 20 bls. rags.
Keer Walker Co., Inc., *Vincent,* Hull, 60 coils old rope.
———, *Vincent,* Dundee, 10 bls. paper stock.
E. J. Keller Co., Inc., *Norbryn,* ———, 28 bls. rags, 31 bls. old light prints.
J. W. Hampton Jr., & Co., *Scanmail,* Kotka, 89 rolls newsprint.
Wilkinson Bros., & Co., Inc., *Scanmail,* Kotka, 151 rolls newsprint.
Jay Madden Corp., *Scanmail,* Kotka, 277 rolls, 401 bls. wood pulp boards, 115 tons.
Pulp Sales Corp., *Scanmail,* Wiborg, 1117 bls. sulphite, 209 tons.
Castle & Overton, Inc., *Scanmail,* Wiborg, 130 bls. wood pulp, 26 tons.
Continental Bank & Trust Co., *Collamer,* Dunkirk, 52 bls. paper stock.
M. Sone, *Bonita,* Sundsvall, 1200 bls. wood pulp.
Pagel Horton & Co., Inc., *Schwanheim,* Sweden, 1800 bls. wood pulp.
Gottesman & Co., Inc., *Schwanheim,* Sweden, 10092 bls. wood pulp.
E. J. Keller Co., Inc., *G. Maersk,* ———, 77 bls. bagging.
Price & Pierce, Ltd., *Schwanheim,* ———, 360 bls. unbleached sulphate; 24450 bls. unbleached sulphite.

BALTIMORE IMPORTS

WEEK ENDING JANUARY 21, 1939

———, *Vincent,* Hamburg, 639 bls. wood pulp.
Bulkley Dunton Pulp Co., *Klaus Schoke,* ———, 5500 bls. sulphate, 1100 tons.
———, *Klaus Schoke,* Hernosand, 930 bls. sulphate.
———, *Klaus Schoke,* Obbola, 1750 bls. sulphate, 250 tons.
Atterbury Bros., Inc., *Klaus Schoke,* Sundsvall, 750 bls. dry pulp, 125 tons.
Cellulose Sales Co., Inc., *Klaus Schoke,* Sundsvall, 2600 bls. sulphite, 450 tons.
Nolan Bowmall & Co., Inc., *Klaus Schoke,* Sundsvall, 175 rolls newsprint.
Parsons & Whittemore, Inc., *Klaus Schoke,* Sundsvall, 233 rolls newsprint.
Moser Bag & Paper Co., *Scanmail,* Helsingfors, 4 bls., 900 rolls wrapping paper.
Congoleum Nairn Co., *Collamer,* Havre, 928 bls. rags.

NORFOLK IMPORTS

WEEK ENDING JANUARY 21, 1939

———, *Vincent,* Hamburg, 126 rolls newsprint.

NEWPORT NEWS IMPORTS

WEEK ENDING JANUARY 21, 1939

De Manduit Paper Corp., *Collamer,* Havre, 1423 cs. cigarette paper.

L. J. Connery on Printing Committee

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., January 25, 1939—Representative Lawrence J. Connery of Massachusetts was elected a member of the Joint Congressional Committee on Printing last week. The committee has charge of paper purchases for the Government Printing Office. Mr. Connery succeeded former Representative J. Walter Lambeth of North Carolina, who was chairman of the committee and who did not run for reelection.

There is now a vacancy in the chairmanship and it is expected that Senator Carl Hayden of Arizona will be the new chairman. Other members of the committee include; Senators David I. Walsh of Massachusetts and Arthur H. Vandenberg of Michigan and Representatives Pete Jarman of Alabama; and Robert F. Rich of Pennsylvania. Ansel Wodl remains as clerk of the committee.

To Represent Edge Moor Iron Works

The Edge Moor Iron Works, Inc., 30 Rockefeller Plaza, New York, N. Y., have appointed Cochrane Engineering Company, 53 West Jackson Boulevard, Chicago, Ill., as exclusive sales representatives for the sale of fabricated vessels and chemical equipment. The Chicago office is under the direction of H. J. Meier and Thomas Bishop, both of whom have had long experience in handling this class of equipment, and are fully conversant with engineering and shop practice. The appointment of this company as representatives enables Edge Moor Iron Works, Inc. to render complete and prompt service to purchasers in the district covered, which includes the southern half of Illinois, the northern section of Indiana, most of Wisconsin, and the eastern half of the State of Iowa.

To Make Transparent Wrappings

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., January 23, 1939—A company to manufacture transparent wrappings in Australia, with British and Australian capital, will be organized soon, according to a statement issued by the acting chairman of Australian Paper Manufacturers, Ltd., Normal E. Brookes. A group represented by Messrs. Russell and Goeffrey Grimwade, in conjunction with the Australian Paper Manufacturers, Ltd., has arranged with a well known British company of transparent wrapping manufacturers to investigate jointly the economics of such an industry in Australia. Two senior officials of the British company will arrive in Australia soon. The investigation will probably occupy about 6 months.

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, January 25, 1939.

Signs of improvement in the demand for some grades of paper are reflected in the reports from many of the wholesale paper merchants for the current week. No indication of a substantial increase in sales volume is noted at this date, and the general business situation apparently does not encourage greater expectations than that of moderate optimism. No noteworthy improvement can be expected until general business activity reaches a higher than present level.

The index of general business activity declined for the week ended January 14, to 90.7 per cent, compared with 93.6 per cent for the preceding week, and with 81.9 per cent for the corresponding week last year. Production of some 200 paper mills for the week ended January 14, 1939, stood at an estimated 79.3 per cent, compared with 62.3 per cent for the corresponding period last year. Production of paper board for a like period was 62.0 per cent, compared with 52.0 per cent for the corresponding week ended January 15, 1938.

The newsprint situation remains little changed from the preceding week. Consumption is reported as slowly improving and while it has been higher during the past few weeks, it remains under that of the corresponding period last year. Prices remain firm and are expected to continue unchanged at prevailing quotations.

Mechanical Pulp

No change in the market situation in mechanical pulp has been reported for the current week. Demand continues rather light, with prices on all grades of imported and domestic pulps holding relatively firm.

Chemical Pulp

Business in chemical pulp is reported as light and the market situation unchanged from the preceding week. Little improvement is looked for in the trade until the latter part of next month or the first of March. Prices are weak, with some reports of stocks piling up at various terminals, but no definite trend to lower prices is evident at this date, though higher prices are not viewed as a possibility under the present relatively low level of demand.

Old Rope and Bagging

Trading in old rope is reported as light with prices on domestic manila, light and heavy wool tares, and mixed strings, lower for this week. Demand for old bagging continues light, with lower prices on domestic No. 1 gunny, which is currently quoted at 1.90 to 2.00, while the roofing grade is offered at from .60 to .70 per hundredweight.

Rags

The rag market continues weak with many grades of new and old domestic rags quoted at lower prices for the current week. Mills are reported to have adequate stocks on hand for present capacity operations and no immediate improvement in the market situation is expected in the trade in the near future. The foreign rag market is inactive, with prices strictly nominal.

Old Waste Paper

No important change in the market situation in old waste paper has been reported for the week. Prices continue low in conformity with a limited demand. Quotations on some grades are lower for this week: soft white No. 1 shavings being currently quoted at from 1.60 to 1.75; white ledger stock, at from 1.10 to 1.20; old kraft at from .50 to .60; No. 1 white news, at from 1.25 to 1.30; and strictly overissues at from .40 to .45 per hundredweight.

Twine

No important change in demand or prices have been reported in any grades of hard or soft fiber twines for this week. Prices remain relatively firm and conform to prevailing market quotations.

Wayne Lowe to be General Manager

[FROM OUR REGULAR CORRESPONDENT]

OGDENSBURG, N. Y., January 23, 1939—Announcement is made here of the appointment of Wayne Lowe, a former resident, as general manager of the Algonquin Paper Corporation. An official of the concern stated that Mr. Lowe will take over the active management of the local mill and the George Hall Corporation as well as the Hall concern of Canada at Mount Louis Seignory, Quebec, a huge timber tract from which the mill obtains its pulpwood. Mr. Lowe is expected to take up his residence here late this month and will assume his new duties shortly afterwards. Although Mr. Lowe will take over active charge of the industries, Frank A. Augsbury, head of the concern, said that he would be on hand to offer advice and any other help required. Mr. Augsbury, now 74 years old, entered the employ of the Hall Company as vice president in 1917 and later was named president. He has retained active management of both the Hall Company and the Algonquin Paper Mills since that time. The paper mills are now operating 24 hours daily despite the fact that many others throughout the country were affected by the recent depression. In recent years Mr. Augsbury has failed somewhat in health and for a time last summer he was a patient in a Montreal hospital. He is much improved now, however, and plans to continue work in his offices.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, January 25, 1939.

ALUM (Activated)—Quotations on activated alum are firm and unchanged at prevailing market quotations. The commercial grades are quoted at $.90 per 100 pounds, in 100 pound multi-wall bags, car lots, f.o.b., works.

BLANC FIXE—Prices on blanc fixe continue firm and conform to prevailing market quotations. The pulp is offered at from $42.50 to $45 per ton; the powder is quoted at from 3½ to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER—Prices on bleaching powder are firm and unchanged at prevailing market levels. Bleaching powder is offered at from $2 to $2.25 per 100 pounds, in drums, at works.

CASEIN—The demand for casein is reported as fair for the current week. Standard domestic ground casein, 20-30 mesh, is quoted at 9 cents per pound; 80-100 mesh at 10 cents per pound; all prices in bags, car lot quantities.

CAUSTIC SODA—Quotations on caustic soda are firm and conform to prevailing market levels. Solid caustic soda is quoted at from $2.10 to $2.30 per 100 pounds; flake and ground at from $2.50 to $2.70 per 100 pounds, in drums, at works.

CHINA CLAY—Prices on china clay are firm and unchanged at prevailing market prices. Domestic filler clay is quoted at from $6.50 to $12 per ton; coating clay at from $11 to $22 per ton, at mines. Imported clay is offered at from $14.50 to $25 per ton, ship side.

CHLORINE—Quotations on chlorine remain unchanged at prevailing market prices. Chlorine is quoted at $2 per 100 pounds, in single-unit tank cars, f.o.b., works.

ROSIN—The demand for rosin and rosin size is reported as good for the week. "G" gum rosin is quoted at $5.10; "F" wood rosin at $4.25 per 280 pounds, gross weight, in barrels, at Savannah. Seventy per cent gum rosin size is quoted at $2.78 per 100 pounds, f.o.b., shipping point.

SALT CAKE—Quotations on salt cake are firm and conform to prevailing market levels. Prices range at from $12 to $13.50 per ton; chrome salt cake at from $11 to $12 per ton, f.o.b., shipping point. Imported salt cake is quoted at from $14.50 to $15 per ton, Gulf or Atlantic Seaboard, on dock.

SODA ASH—Prices on soda ash are firm and unchanged at prevailing market quotations. Quotations on soda ash in car lots, at works, per 100 pounds, are as follows: in bulk, $.90; in bags, $1.05; and in barrels, $1.35.

STARCH—Quotations on corn starch are firm and unchanged at prevailing market prices. Globe pearl is quoted at $2.60 per 100 pounds; special paper starch at $2.70 per 100 pounds. All prices in bags, car lots, f.o.b., Chicago.

SULPHATE OF ALUMINA—Prices on sulphate of alumina remain firm at prevailing market quotations. The commercial grades are quoted at $1.15; iron free at $1.30, per 100 pounds, in bags, car lot quantities, f.o.b., works.

SULPHUR—Quotations on sulphur continue firm at prevailing market levels. Annual contracts are offered at $16 per long ton, f.o.b., mines. Spot and nearby car lots are quoted at $19 per ton.

TALC—Prices on talc continue firm at prevailing market levels. Domestic talc is offered at from $15 to $18 per ton, Eastern mines. Imported talc is quoted at from $25 to $40 per ton, on dock.

Market Quotations

Paper

(Delivered New York)

News, per ton—			
Roll, contract	$50.00	@	—
Sheets	$8.00	@	—
Kraft—per cwt.—Delivered Zone A			
No. 1 Northern	$4.75	@	$5.25
Superstandard	4.12½	@	4.62½
Northern Standard Wrapping	4.00	@	—
Standard Wrapping	3.50	@	—
Tissues—Per Ream—Carlots			
White No. 1	.92½	@	—
White No. 1 M. G.	.90	@	—
White No. 1½	.67½	@	—
White No. 2	.60	@	—
Anti-Tarnish M. G.	.75	@	—
Colored	.87½	@	—
Kraft	.75	@	—
Manila	.60	@	—
Unbl. Toilet, 1 M.	3.20	@	—
Bleached Toilet	5.26	@	—
Paper Towels—			
Unbleached	1.80	@	—
Bleached	2.10	@	—
Manila—per cwt.—C. l. f. a.			
No. 1 Jute	8.25	@	9.75
No. 2 Jute	7.50	@	9.00
No. 1 Manila Wrapping, 35 lb.	5.00	@	—
No. 2 Manila Wrapping, 35 lb.	4.75	@	—
Boards, per ton—			
News	27.50	@	30.00
Chip	27.50	@	30.00
Sgl. Mla. Ll. Chip.	42.50	@	—
Jute Lined Chip	42.50	@	45.00
White Pat. Coated	55.00	@	57.50
Kraft Liners	42.50	@	45.00
Binders Boards	71.00	@	77.00

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds		Ledgers	
100% Rag Ext. No. 1	$39.10	@ $46.00	$40.25	@ $47.25
100% Rag	31.05	@ 36.50	32.20	@ 37.75
85% Rag	.....		29.90	@ 35.00
75% Rag	23.60	@ 27.75	24.75	@ 29.00
65% Rag	.....		21.65	@ 26.25
50% Rag	17.55	@ 21.50	18.70	@ 22.75
25% Rag	14.65	@ 17.75	15.80	@ 19.25

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds	Ledgers
No. 1	$8.60 @ $10.50	$9.75 @ $12.00
No. 2	7.70 @ 9.50	8.90 @ 10.75
No. 3	6.85 @ 8.25	8.00 @ 9.75
No. 4	6.45 @ 7.75	7.60 @ 9.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper, Delivered in Zone 1:

No. 1 Glossy Coated	$10.80	@	$12.50
No. 2 Glossy Coated	9.25	@	10.75
No. 3 Glossy Coated	8.15	@	9.50
No. 4 Glossy Coated	7.65	@	9.00
No. 1 Antique (watermarked)	7.65	@	9.00
No. 2 Offset	7.00	@	8.25
A Grade E. F.	6.80	@	8.00
A Grade S. & S. C.	7.05	@	8.25
B Grade E. F.	6.25	@	7.50
B Grade S. & S. C.	6.50	@	7.75
C Grade E. F.	6.00	@	7.00
C Grade S. & S. C.	6.25	@	7.25
D Grade E. F.	5.70	@	6.75
D Grade S. & S. C.	5.95	@	7.00

Ivory & India at $.50 cwt. extra.

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—			
Moist	25.00	@	28.00
Dry	25.00	@	28.00
(Delivered)			
No. 1 Domestic and Canadian	29.00	@	33.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Prime Bleached Sulphite	2.25	@	2.75
Prime Qualities—			
Easy-Bleaching Sulphite	1.90	@	2.10
Strong Unbleached Sulphite	1.80	@	2.00
(On Dock, Atlantic Ports)			
Kraft Bleached	2.50	@	2.75
Kraft Light & Strong	1.60	@	1.75
Kraft No. 1	1.45	@	1.65
Kraft No. 2	1.40	@	1.45
(F. o. b. Pulp Mill)			
Kraft Domestic	1.25	@	1.75
(Delivered)			
Soda Bleached	2.55	@	—

Add 60 cents per short ton, dock charges for Albany; $2.50 for Lake Ports East and $3.50 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	6.75	@	7.00
Silesias No. 1	4.00	@	4.25
New Unbleached	6.50	@	6.75
Blue Overall	4.75	@	5.00
Fancy	2.00	@	2.15
Washables	1.50	@	1.60
Mixed Khaki Cuttings	3.00	@	3.25
O. D. Khaki Cuttings	4.00		4.25

Old Rags

White, No. 1—			
Repacked	2.90	@	3.15
Miscellaneous	2.10	@	2.25
White, No. 2—			
Repacked	1.50	@	1.60
Miscellaneous	1.25	@	1.40
Thirds and Blues—			
Repacked	1.30	@	1.40
Miscellaneous	1.25	@	1.30
Roofing Rags—			
No. 1	1.10	@	1.20
No. 2	.90	@	1.00
No. 3 (bagging)	.60	@	.70
No. 4	.65	@	.70
No. 5A	.65	@	.70

Foreign Rags

New Rags

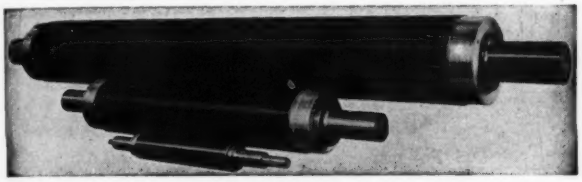
New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	@	2.20
New Light Silesias	5.50	@	5.75
Light Flannelettes	5.50	@	5.75
New White Cuttings	7.00	@	7.50
New Light Oxford	4.00	@	4.50
New Light Prints	3.00	@	3.25

Old Rags

No. 1 White Linens	7.50	@	8.50
No. 2 White Linens	6.50	@	7.50
No. 3 White Linens	4.50	@	—

APPLETON CALENDER • ROLLS •

Roll problems in many mills are studied over and over again by Appleton engineers. They are constantly finding ways in which Appleton Calender Rolls can serve you better. Advantage has been taken of every technical advance to build in longer life—to achieve the extra strength and stamina to give longer wear and finer finish. For long service rolls, specify Appleton Calender Rolls.



THE APPLETON MACHINE COMPANY • Appleton • Wisconsin

Mundt

Perforated Screens For Pulp and Paper Mills

Steel, Copper, Brass Bronze, Monel Metal and Other Alloys Punched for Centrifugal and Rotary Screens, Pulp Washers, Drainer Bottoms, Filter Plates, etc.

Charles Mundt & Sons
67 Fairmount Ave. Jersey City, N. J.

West Virginia Pulp and Paper Company

230 Park Ave. New York
35 East Wacker Drive Chicago
Public Ledger Building Philadelphia, Pa.
503 Market St. San Francisco, Cal.

Manufacturers of

ENGLISH FINISH SUPERCALENDERED MACHINE FINISHED BOOK and LITHOGRAPHIC PAPERS

Offset, Envelope, Bond, Writing, Mimeograph, Ledger, Eggshell, Cover and Music Papers, Index Bristol, Post Card and Label Papers

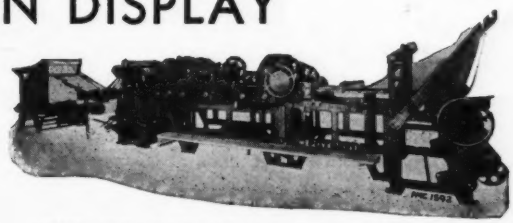
HIGH GRADE COATED BOOK

• • • •

KRAFT WRAPPING AND KRAFT ENVELOPE
KRAFT CYLINDER BOARD
BLEACHED SULPHITE AND SODA PULP
BLEACHED AND UNBLEACHED KRAFT PULP

MILLS:
Mechanicville, New York — Tyrone, Pennsylvania
Luke, Maryland — Williamsburg, Pennsylvania
Covington, Virginia — Cass, West Virginia
Charleston, South Carolina

ON DISPLAY



PMC. 1592. 2-color printing dry cleaner bag machine

POTDEVIN DRY CLEANER BAG MACHINE

Dry cleaner bags, pants bags, blanket bags, banana bags, laundry bags, large millinery bags, large flat and tucked specialty bags—all come within the long range of the POTDEVIN Model 238. And when aniline or oil-ink printed, in one operation, these bags find an easy and ever expanding market.

The speed and scope of these POTDEVIN dry cleaner bag machines make them favorites with bag makers.

They are the result of 20 years experience in the building of this particular type of equipment.

* Paper Convention Week—Feb. 20-25, 1939.

BAG MACHINES, PRINTING & COATING MACHINES

POTDEVIN MACHINE CO.
1223 36th Street Brooklyn, New York
Established 1883 Telephone ... 1700

No. 4 White Linens	2.25	@	3.25
No. 1 White Cotton	4.25	@	4.75
No. 2 White Cotton	3.25	@	3.75
No. 3 White Cotton	2.50	@	3.00
No. 4 White Cotton	1.90	@	2.20
Extra Light Prints	2.00	@	2.40
Ord. Light Prints	1.75	@	2.15
Med. Light Prints	1.55	@	1.95
Dutch Blue Cottons	2.25	@	2.50
French Blue Linens	3.00	@	—
Checks and Blues	2.00	@	—
Linsey Garments	1.90	@	2.00
Dark Cottons	1.50	@	1.60
Old Shopperies	1.30	@	1.45
New Shopperies	1.45	@	1.50
French Blues	2.25	@	2.50

Old Rope and Bagging

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	2.10	@	2.20
Domestic	1.90	@	2.00
Wool Tares, light	1.70	@	1.80
Wool Tares, heavy	1.80	@	1.90
Bright Bagging	1.70	@	1.80
Manila Rope—			
Foreign	2.60	@	2.75
Domestic	2.00	@	3.00
Jute Threads	2.75	@	3.00
Sisal Strings	1.50	@	1.60
Mixed Strings	.55	@	.60

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	2.40	@	2.50
Ordinary Hard White No. 1	1.90	@	2.00
Soft White No. 1	1.60	@	1.75
Soft White Extra	2.25	@	2.40
Flat Stock—			
Stitchless	.80	@	.85
Overissue Mag.	.70	@	.75
Solid Flat Book	.60	@	.65
Crumbled No. 1	.40	@	.45
Ledger Stock White	1.10	@	1.20
Ledger Stock Colored	.60	@	.70
New B. B. Chips	.15	@	.20
Manila—			
New Env. Cut	1.40	@	1.50
New Cuttings	1.00	@	1.20
Old Kraft Machine— Compressed bales	.50	@	.60
News—			
No. 1 White News	1.25	@	1.30
Strictly Overissue	.40	@	.45
Strictly Folded	.30	@	.35
No. 1 Mixed Paper	.15	@	.20

Twines

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.12¾	@	.14½
White Hemp	.13¾	@	.15¾
Fine Polished—			
Fine India	.16	@	.18
Unpolished—			
Box	.09½	@	—
Paper Makers	.09½	@	.10½
Tube Rope	.10¼	@	.12½
Wall Paper	.10¼	@	.12½
Wrapping	—	@	—
Soft Fiber Rope	.12	@	.14
Cotton	.17	@	.20

(Hard Fiber)

Medium Java	.11	@	.17
Mex. Sisal	.10	@	.16
Manila	.18	@	.25

Domestic	2.65	@	2.75
Sisal Rope	1.60	@	1.65
Mixed Rope	.40	@	.50
Transmission Rope	1.90	@	2.00
Soft Jute Rope	1.80	@	2.00
Jute Carpet Threads	.75	@	.90
Gunny Bagging—			
Foreign	1.75	@	2.00
Domestic	1.60	@	1.70
Bleachery Burlap	2.75	@	3.00
Scrap Burlap—			
Foreign	1.60	@	—
Domestic	1.40	@	1.55
Scrap Sisal	1.25	@	1.50
Scrap Sisal for Shredding	1.50	@	1.60
Wool Tares, Heavy	1.60	@	1.65
New Burlap Cuttings	2.00	@	2.25
Aust. Wool Pouches	2.75	@	3.00
Heavy baling bagging	1.75	@	1.85
Paper Mill Bagging	1.00	@	1.15
No. 2 Bagging	.55	@	.75

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.03¼	@	.03½
New White No. 1	.06¾	@	.07
New Light Flannelettes	.04¾	@	—
Silesias No. 1	.04¾	@	—
New Black Silesias	.03¾	@	.04
Soft Unbleached	6.50	@	7.00
Blue Cheviots	.05	@	.05¼
Fancy	.03	@	.03¼
Washable	.02¾	@	.03

Cottons—According to grades—			
Blue Overalls	.04¾	@	.05
New Black, soft	.03¾	@	.04
Khaki Cuttings	.03	@	.03½
O. D. Khaki	.04	@	—
Corduroy	.02¾	@	.03
New Canvas	.06¾	@	.07¼
B. V. D. Cuttings	.06¾	@	—

Domestic Rags (Old)

(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	—	@	2.75
Miscellaneous	2.50	@	2.75
White No. 2—			
Repacked	1.90	@	2.00
Miscellaneous	2.00	@	2.25
Twos and Blues	1.75	@	2.00
Old Blue Overalls	1.50	@	—
Thirds and Blues—			
Repacked	1.37½	@	1.75
Miscellaneous	1.25	@	1.62½
Black Stockings	3.90	@	4.00
Roofing Stock—			
No. 1	1.00	@	1.10
No. 2	.75	@	.85
No. 3	.65	@	.70

Foreign Rags

(F. o. b. Boston)

Dark Cottons	1.10	@	1.15
Dutch Blues	2.65	@	2.75
New Checks and Blues	2.85	@	3.00
Old Fustians	2.25	@	2.50
Old Linsey Garments	2.20	@	2.25
New Silesias	4.75	@	—

PHILADELPHIA

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.06	@	.06¼
New White, No. 2	.03½	@	.04
Light Silesias	.03½	@	.04
Silesias, No. 1	—	@	.04½
Black Silesias, soft	—	@	.03
New Unbleached	.05½	@	.06
Washable, No. 1	.01½	@	.01¾
Blue Overall	.04	@	.04½
Cottons—According to grades—			
Washable No. 2	.01	@	.01¾
New Blue	.01	@	.01¾
Fancy Percales	—	@	.02½
New Black Soft	.03	@	.03½
New Light Seconds	—	@	.04½
New Dark Seconds	.50	@	.75
Khaki Cuttings—			
No. 1 O. D.	.03	@	.03½
No. 2 Mixed	.02	@	.02½
Corduroy	—	@	.02
New Canvas	.05	@	.05¼
New Black Mixed	.02½	@	.02¾

Domestic Rags (Old)

White No. 1—			
Repacked	3.00	@	3.25
Miscellaneous	2.50	@	2.75
Thirds and Blues—			
Miscellaneous	1.00	@	1.25
Repacked	1.50	@	1.75
Black Stockings (Export)	3.00	@	3.50
Roofing Stock—			
Foreign No. 1	—	@	.95
Domestic No. 1	—	@	.95
Domestic No. 2	—	@	.85
Roofing Bagging	—	@	.85

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.75	@	2.00
Domestic	1.50	@	1.75
Manila Rope	—	@	3.50
Sisal Rope	1.50	@	1.75
Mixed Rope	.75	@	1.00
Scrap—			
No. 1	—	@	1.75
No. 2	1.00	@	1.25
Wool Tares, heavy	3.25	@	3.50
Mixed Strings	.75	@	1.00
No. 1 New Light Burlap	2.50	@	3.00
New Burlap Cuttings	1.75	@	2.00

Old Papers

(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	2.25	@	2.30
No. 2 Hard White	1.90	@	2.00
No. 1 Soft White	1.75	@	1.80
No. 2 Soft White	1.30	@	1.40
No. 1 Mixed	.65	@	.75
Solid Ledger Stock	1.45	@	1.50
Ledger Stock, white	1.15	@	1.20
Ledger Stock, colored	.75	@	.80
No. 1 Books, heavy	.60	@	.75
Manila Cuttings	1.45	@	1.50
Print Manila	.40	@	.45
Container Manila	.35	@	.40
Kraft Paper	.75	@	.80
No. 1 Mixed Paper	.20	@	.25
Straw Board Chip	.25	@	.30
Binders Board Chip	.25	@	.30
Corrugated Board	.50	@	.55
Overissue News	.40	@	.45
Old Newspapers	.35	@	.40

BOSTON

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White	2.25	@	2.50
No. 1 Soft White	1.85	@	2.15
No. 2 Mixed	.75	@	.80
Solid Ledger Books	1.30	@	—
Overissue Ledger Stock	1.30	@	1.50
Mixed Ledgers	.85	@	.90
No. 1 Books, heavy	.65	@	.75
No. 1 Books, light	.65	@	.75
Crumpled Stitchless Book Stock	.55	@	.65
Manila Env. Cuttings	1.85	@	2.00
Manila Envelope Cuttings, extra quality	2.00	@	2.10
No. 1 Old Manila	.80	@	.90
White Blank News	1.30	@	1.40
No. 1 Kraft	.80	@	.85
Mixed Papers	.15	@	—
Print Manila	.45	@	.55
Container Manilas	.27½	@	—
Old Newspapers	.25	@	.32½
Paper Wool Strings	.50	@	.65
Overissue News	.45	@	.50
Box Board Chips	.20	@	.25
Corrugated Boxes	.25	@	.30
Kraft corrugated boxes	.60	@	.65
Screening Wrappers	.40	@	.45

Bagging

(F. o. b. Boston)

Manila Rope—			
Foreign	2.65	@	2.75

CHICAGO

Old Papers

(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope Cuttings	1.80	@	1.90
No. 1 Hard White	1.70	@	1.80
No. 1 Soft White	1.50	@	—
Ledger & Writings	.75	@	.80
Solid Books	.45	@	.50
Blanks	.90	@	—
Krafts	.45	@	.50
New Kraft Cuts	1.10	@	—
Manila Env. Cuts	Nominal		
Ex. No. 1 Manila	Nominal		
Print Manila	Nominal		
Overissue News	.35	@	—
Old Newspapers—			
No. 1 Folded News	.25	@	.30
No. 1 Mixed Paper	.15	@	.20
Roofing Stocks—			
No. 1	1.00	@	1.05
No. 2	.85	@	—

TORONTO

Paper

Bonds

Direct mill shipment in two-ton lots

No. 1 White	$35.50	@	—
No. 1 Tints	36.50	@	—
No. 2 White	25.50	@	—
No. 2 Tints	26.50	@	—
No. 2 Golden Rod	27.50	@	—
No. 3 White	21.00	@	—
No. 4 White	15.00	@	—
No. 4 Tints	16.00	@	—
No. 4 Golden Rod	17.00	@	—

Direct mill shipment in three-ton lots

No. 5 White	$10.50	@	—
No. 5 Tints	11.50	@	—
No. 5 Golden Rod	12.00	@	—
No. 6 White	9.00	@	—
No. 6 Tints	9.50	@	—
No. 6 Golden Rod	11.00	@	—
No. 7 White	8.00	@	—
No. 7 Tints	8.50	@	—
No. 7 Golden Rod	10.00	@	—
Book—			
No. 1 M. F.	$7.00	@	—
No. 2 M. F.	6.50	@	—
No. 3 M. F.	5.25	@	—
No. 1 S. C.	7.25	@	—
No. 2 S. C.	6.75	@	—
No. 3 S. C.	5.75	@	—

Coated Book & Litho

Ton Lots (resale)

No. 1	$12.00	@	—
No. 2	10.25	@	—
No. 3	8.90	@	—
Coated tinted	13.00	@	—
Wrapping—delivered—			
Rag Brown	4.85	@	5.25
White Wrap	4.00	@	—
"B" Manila	4.90	@	6.15
No. 1 Manila	5.50	@	6.90
Fiber	5.50	@	6.90
Kraft No. 2	5.50	@	6.90

(F. o. b. Cars, Toronto)

News per ton—			
Rolls (contract)	46.00	@	—
Sheets	54.00	@	—

Pulp

Ground wood	29.50	@	—
Bleached sulphite	54.00	@	—
Unbleached sulphite	44.00	@	—
Kraft	50.00	@	—
Soda	51.00	@	—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	2.25	@	—
Soft White	2.15	@	—
White Blk. News	1.25	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	.70	@	—
Light and Crumpled Book Stock	.60	@	—
Ledgers and Writings	1.00	@	—
Manilas—			
New Manila Cut	1.35	@	—
Printed Manilas	.45	@	—
Kraft	.95	@	—
News and Scrap—			
Strictly Overissue	.50	@	—
Strictly Folded	.45	@	—
No. 1 Mixed Paper	.30	@	—

Domestic Rags

(Price to Mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.06½	@	.06¾
Fancy Shirt Cuttings	.02¾	@	.03½